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Dollars that Fight

By SENATOR HENRY CABOT LODGE

The war will be won by men and ships, by guns and airplanes. To raise armies and supply them, to build the navy and support it, and to furnish ships and transports, we must have money in large amounts. The expenditures of the Government for the ensuing year are estimated at $24,000,000,000, a sum which baffles the imagination to conceive. That vast amount must come one-third from taxes and two-thirds from loans. The success of the Fourth Loan, like those that preceded it, is, therefore, absolutely necessary. We must work with the highest speed, as if the war was to end in six months. We must prepare in every direction, as if it was to last for years. Speed and preparation are both expensive.

We cannot win without money, and, therefore, these Loans are vital, and the country should rally in all its strength and subscribe and oversubscribe the Fourth Loan.

BUY BONDS TO YOUR UTMOST

This Space Contributed to Winning the War by

The Koppers Company, Pittsburgh, Pa.

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The Gas Machinery Co.

Cleveland, Ohio

BY-PRODUCT COKE PLANTS

COAL GAS PLANTS **WATER GAS PLANTS**

AQUA, SULPHATE and CONCENTRATED AMMONIA PLANTS

NOTE:—

This advertisement is only to keep you reminded of the

U. G. I. Vertical Retorts

The best system of coal carbonization in America today

Figures prove this and the guarantees of

THE UNITED GAS IMPROVEMENT CO., Philadelphia

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Entered as second-class matter January 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

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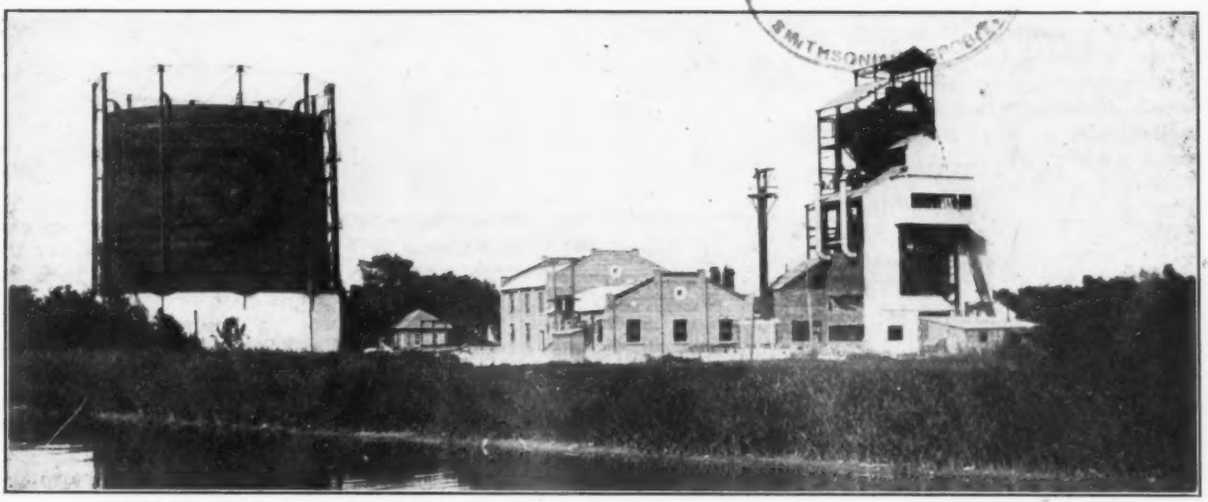


Plant at Fond du Lac First of Its Kind to Be Erected in Medium-Sized City

Expected That It Will Serve as Model for Many Others When Construction Again Becomes General—Grounds to Be Laid Out as Park

The new gas plant being erected for the Eastern Wisconsin Electric Company on West Johnson Street, for the purpose of supplying fuel and illuminating gas to the city of Fond du Lac, has reached the stage of completion that has enabled operation to be started.

The first retorts were charged Wednesday, Sept. 25. The old plant, which has been in continuous operation for approximately fifty-seven years, was shut down finally on the 27th.

As in all operations of the kind, some few difficulties were anticipated, but nothing of a serious nature developed, and operation is progressing satisfactorily at the present time.

The construction, however, is not entirely completed, and it will probably be a matter of at least six weeks before the construction gangs are all away from Fond du Lac.

War Delayed Completion

The gas property of the Eastern Wisconsin Electric Company was acquired by purchase in the early part of 1917, at which time plans were formulated and contracts made for the new plant. Owing to war conditions, the scarcity of material and labor, considerable difficulty has been met during the construction.

The gas-making portion of the new plant consists of two benches, each containing nine retorts. Each retort will take a charge of 1 ton of coal. The retorts are placed vertically and the entire installation of this portion of the work was made by the United Gas Improvement Company, of Philadelphia, Pa. The maximum gas-making capacity of the two benches now installed is approximately 450,000 cu. ft. daily. Provision has been made for the future growth of Fond du Lac, as is shown by the fact that the maximum daily requirements up to this time have been 327,000 cu. ft.

The new gas holder has a capacity of 500,000 cu. ft., as against the 100,000 cu. ft. capacity of the old plant. The new holder was erected and finished in the early part of this year by the Stacey Manufacturing Company, of Cincinnati, Ohio.

All of the remaining portion of the new plant, consisting of buildings, conveyors, elevators, machinery and apparatus of all descriptions, was designed and erected by Kelsey, Brewer & Company, of Grand Rapids, Mich., under the immediate supervision of the local manager, M. H. Frank.

PROVISION FOR GREATLY INCREASED CONSUMPTION

The ultimate capacity of all apparatus, other than the new benches, is approximately 800,000 cu. ft. of gas daily. Provision is everywhere made for greatly increased gas consumption.

The installation throughout is the most modern and up to date for the purpose. The city of Fond du Lac is the first medium-sized city in the United States to be supplied from a plant of this description. Other cities using the same plant are Rochester, N. Y.; Hartford, Conn.; Philadelphia, Pa., and Fall River, Mass.

The construction of the new plant has been watched with a great deal of interest by gas men throughout the country, and there is no doubt that when financial conditions become easier the plant in Fond du Lac will be the model for many installations throughout the country.

As soon as construction is entirely completed it is the intention of the company to so improve the grounds upon which this plant is located as to some extent resemble a park. The plant is located on a tract 10 acres in extent, which will lend itself readily to such intentions. It is located about in the center of the tract, so as to allow for caring for the grounds on all sides.

The Eastern Wisconsin Electric Company is owned and operated by Kelsey, Brewer & Company. The officers of the corporation are as follows: Joseph H. Brewer, Grand Rapids, Mich., president; Raymond H. Smith, Sheboygan, Wis., vice-president and general manager; Blaine Gavett, Grand Rapids, Mich., secretary, and W. J. Ripley, Grand Rapids, Mich., treasurer.

Hand Lance or Mechanical Soot Cleaner?

Some engineers still seem to have an idea that the tubes of a boiler can be more thoroughly cleaned by means of a hand lance than any other method. They think they can "get in" where a mechanical blower or permanently installed blower won't even reach. Therefore, they will not consider the purchase of a permanent installation. It is doubtless true that a hand lance will get into out-of-the-way corners a little better than will the permanently located blower, but as far as the writer is aware that is the sole virtue of the hand-lance method of cleaning.

In the first place, soot cleaning is a most disagreeable job. Most firemen and all other men detest the work because it is so hot and dirty. And, besides, it is dangerous. The writer doesn't blame any man for leaving the employ of a chief who insists on the hand method, provided he can get a job in a neighboring plant where the more modern method has been adopted.

Imagine yourself handling a hot steam hose in a cramped place, especially in the summer time. Imagine yourself taking much interest in such work when you "know" through published reports that such toil is out of date. We don't mind doing disagreeable work when there is no other way out of it, but just as soon as a good automatic method has been invented the "hand method" is "all off," as the expression goes. This failing (which may not be a failing at all, but rather an indication of higher civilization) was particularly evident when Garfield declared five successive industrial holidays for the purpose of conserving fuel. Garfield did not ask men to sit down and fold their hands altogether. He as much as said, "If you can do it or make it without using fuel, go ahead." But how many industries in the United States did it the "long-hand" way? I don't know of a solitary one. Some of us would not do office work because the elevators were not running and our offices were a few flights up. So, being human, how can you expect a fireman to blow soot the "hard" way when there is an "easy" way?

The mechanical blower has the great advantage of permitting blowing at any time, even when the boiler is under full steam and carrying full load. During the blowing period the walls are all tight, and not an ounce of cold excess air filters through. This point alone permits of an important saving year in and year out. The steam lance, on the other hand, can be used but once per day at the most. The boiler cannot be operated at the time. The fire cannot be high. The cooling-off loss alone is, therefore, serious enough to give the mechanical cleaner consideration.

Because of the fact that the elements making up the soot blowers are subject to high temperatures, especially when placed close to the first pass of the boiler, it is plain that care must be exercised in keeping the elements from getting so hot as to burn or warp or scale. Trouble was experienced in that direction until just recently, when it was found that a sheath of cast iron slipped onto the elements will save them from the high temperature very nicely. Cast iron has been found to be a very good resister of high temperatures, and for that reason has been used almost exclusively in grates. Cast iron does not oxidize when highly heated, and instead of bending when hot, even when red hot, it retains its stiffness and resistance against bending. Hence its great value as a protection sheath for the wrought iron or mild steel pipes.

The engineer, therefore, has little to fear as to the permanency of the mechanical installation. The blower pipes or elements are not placed in the "hottest" parts of the furnace. In a B. & W. boiler, for instance, they are placed on top of the bank of tubes just over the first pass where the temperature of the gases has been considerably reduced because of their passage through the entire bank of comparatively cool tubes. The cleaner, nevertheless, is operative, as its jets are placed at angles permitting penetration through the entire tube bank from top to bottom, thus making a "clean sweep." There is therefore no reason why an element should ever be placed in the hottest parts. The principal point on which stress should be laid is, place them in "strategic positions."

*Copyright, 1918, by W. F. Schaphorst.

Laclede Company "Doing Its Bit"

The Laclede Gas Light Company, of St. Louis, is playing no small part in the Fourth Liberty Loan campaign. The company was one of the first to announce its subscription, which is for $400,000. In addition to its money the company is giving its men liberally. In fact, the headquarters of the Liberty Loan organization of St. Louis might easily be confused with the office of the gas company, so numerous are the gas men who for the present are devoting all their time to the loan organization. The gas company's representation at the Liberty Loan headquarters includes C. L. Holman, president of the company; J. J. Burns, superintendent of the commercial department; E. W. McKay, chief clerk of the company, and E. S. Murray, of the rate department.

What Sound Valuations Should Accomplish Is to Create and Maintain Good Service by the Utility at Reasonable Rates

John W. Alvord Defines Such Rates as Rates Wherein There Is an Incentive to Keep Adding Capital to the Enterprise and Which Do Not Impose a Cost on the Consumer That Is in Excess of the Value of the Service to Him

The great world war has disarranged or destroyed many a well-established conviction of mankind, and among other minor matters it has somewhat jolted the practice adopted among a certain class of routine valuators who consider that past cost is the proper measure of value of a public utility property, declared John W. Alvord, consulting engineer of Chicago, in an address before the annual convention of the American Bar Association, Public Utility Section, at Cleveland, Ohio.

It has been creditably estimated that the end of the war will see upwards of 20,000,000 men incapacitated in whole or in part for creative industry. Probably, too, one hundred billion dollars of products necessary to life will have been needlessly consumed or destroyed, all resulting in a great unbalancing of supply and demand, with attending changes in values. It may well be asked what relation has prewar cost to present or future value. Evidently little or none. Old things have passed away, requiring us to find our economical adjustment in a new and greatly changed world. The war has indeed contributed a new and most important chapter in its lesson of economics and valuations.

First of all, the war has taught more of us that value is not the constant thing we considered it, for we have seen its level in a state of constant fluctuation, violent at times and never entirely free from changes.

We must distinguish between sentiment and business. Sentimental values of things depend upon what they have meant to us or have been in our lives, while in business and economic life we value things for what they will now and later yield us in return or income. To-day men are anxiously considering what values will be after the war, but what values have been is no longer of practical interest except to the students of history.

Must Consider Future More Than Past

The war has brought vividly to those engaged in valuation work the important conclusion that value, as a conception to be practically realized, is, after all, a thing always very dependent on what is yet to come. So wound up is it with what is yet to be, so dependent is it on the next stage, that it is no wonder it seems indefinite and elusive. So suddenly has this conviction been forced upon us by the war that numbers of those interested in the subject are either quietly discouraged or openly skeptical as to whether any real principle of valuation is permanent and enduring.

Now, it is not at all true that the principles of valuation have been undermined or destroyed by recent experiences. The misapprehension is due to the fact that there has been too little of the broader grasp of the subject and too little understanding that valuation depends upon human judgment derived from incomplete data and not at all upon a formula or a rule of mathematics. Out of the war we have learned that in valuation work we must consider the future more and the past less. We must admit that to value a property we must become, so to speak, more of a prophet and less of a historian.

When one stops to think of it, a gold mine may have the most wonderful plant, the finest facilities for the removal of ore, a splendid organization and a long past history of rich dividend, but if it reveals signs of early and complete exhaustion all this past upbuilding goes for naught and all its value drops out when the truth is published.

So, too, with the public utility. Its past record of good earnings is chiefly of interest because it enables us to reason about the future, because it is the probable future usefulness that gives a utility plant present value.

If you would think over the list of your worldly goods, your houses, your business, your stocks and bonds, you might ask yourself are these things of value because you owned them in the past, or are they of value because they will produce income or enjoyment for you in the future? Evidently you are constantly peering into the future to see what may happen to them and how you can best protect and conserve them, and when you sell them you tell the buyer what they have brought in only to impress upon him with hope of what they will bring in the future.

What is Wall Street after all but a collection of would-be seers who are constantly scanning the future of the country and its industrial probabilities and trying to make out through the mist of the unknown what is going to happen that will make for higher or lower values?

Basic Errors

It must be agreed, then, I think, that the war has taught us forcibly that value must depend upon a correct prophecy of future conditions, rather than a delving expedition into the dust heaps of things gone by, and those who intently study the probable result of all the forces working for future results will come nearer to determining value than the students of yellow and musty accounts. How many utility valuations of the year 1914 and the years just before are to-day worth the paper they are written on?

Too many of our commissions, courts and appraisal investigators base valuations of utilities on past cost, oblivious to all future conditions. Such errors are due to two reasons:

First—Because of a certain timidity toward accepting conclusions drawn from unrecorded data and independent thinking; and,

Second—An unconscious desire for an exact mathematical solution.

As a matter of fact, the future is not always so indeterminate as it may appear. While the war has undoubtedly surprised most of us, many students of European politics, because fully informed, accurately prophesied the war. The financial circles of Berlin, for example, extensively liquidated their foreign bond holdings months before the war broke out, because of accurate inside information.

If a great world war could be accurately foretold, all the more feasible is it to predict future events and conditions of peace times. The one requisite is correct information, with ability to use it.

The catastrophe furnished by a great flood comes most unexpectedly to the ordinary observer, but not to the hydraulic engineer armed with his long-range or rainfall data and with wide experience in such matters

Growth of population, trend of business, fluctuations in supply and demand, changes of values, and even near-future markets are likewise susceptible of quite close approximation, provided the right kind of information is accumulated, scientifically studied, sifted and used with skilled intelligence.

Men with keen minds and long experience in business, equipped with the right kind of information, are often able to predict future value with an accuracy quite uncanny to the uninitiated. Evidently such men are not numerous, nor are they newly-born fledglings.

Value Never Stable

We need not be discouraged because we unexpectedly wake up to the idea that value is never stable; that it ebbs and flows, and sometimes leaps high, or even vanishes away entirely. This is the true conception of values and diametrically opposed to the old conception of stability. The bankers will tell you that it is an exceedingly difficult thing to safely invest for only fifty years ahead, and the endeavor of commissions to fix a continuous rate for a public utility from only one valuation taken at a particular time is not sound in principle. Valuations for rate-making purposes should theoretically be a continuous process, so as to establish rates whose yield produced fair return over long periods.

If, therefore, we have been so stupid about grasping the fluctuating nature of value, is it not high time that we look at it a little closer and really try to define what value is, that we may understand it better?

Curiously enough, few men can briefly and clearly define value, although a great many men have sound ideas about how to find values. If we analyze the meaning of value carefully we will find that it is always a human attempt to measure the balance that exists between the things that supply human wants and the human wants themselves. When human wants increase faster than they can be supplied, the value of things that will satisfy those wants increases; and when more things exist than are needed, then the value of those things fall. Human needs may be:

First—Absolute needs;

Second—Reasonable wants; or,

Third—Artificial tastes or fancies,

but so long as they are needs, real or fancied, there is always the necessity of measuring up the supply for the purpose of seeing how abundant or limited it may be in comparison to the need. Commonly, this is done by all of us daily, hourly, and quite unconsciously. It is a part of the struggle of life; it is the oft-repeated task of the housewife, the huckster, the shopper and shopkeeper, as well as the economist in larger affairs.

The economists tell us that theoretically the value of all the grain in the world at a particular time is measured by the human need from that time to the next harvest, and the value of all the gold in the world is measured by the needs of ornaments, together with all the property in the world that at any particular time desires to convert itself into that medium of exchange.

But these statements, of course, are very remote and abstract propositions. Practically one needs something less comprehensive and more definite than this to make the idea of value practical, workable and really useful.

As has been said, value depends upon the ratio of all the immediate and easily available supply to the immediate and reasonable demand or need; but we must fix values in some practical and workable manner that is at once sensible and convincing. Thus, for instance, it is not far afield to say that the value of a public utility plant is measured by the present demand and probable future need of the community for its service. This at least reduces the problem to something about which we can reason and figure.

For convenience we commonly measure the probable relation of human need to its supply in terms of money, but this method too often gives our conclusions an appearance of exactness which they are far from possessing.

The constant endeavor also to determine an approximate future value gives rise in common life and ordinary transactions to a sort of give-and-take method of guessing it out, known as market or exchange value, as distinguished from the real or intrinsic value.

What Real Value Is

Real or intrinsic value may be described as the theoretically correct balance, usually measured in money, between a human need and its supply. Were it possible we would always like to know the theoretically correct value even if we did not propose to use it. But it is impossible at any time to know theoretically correct value, because, among other reasons, we are human beings and cannot at any given time know all the facts of the present and the future or correctly and properly analyze them. Therefore, intrinsic value is a thing which we must always seek, knowing that we can only approximate but never fully find it.

Intrinsic values of a utility at some past time can be most closely determined because in the meantime the future supply and demands have become

known and our foresight has become hindsight, thus eliminating all uncertainties of prophecy.

Regulate for Future, Not Past

But the intrinsic value of a thing at some past time is not commonly desired or especially useful in fixing present public utility values. We wish in regulating rates of public utilities to regulate rates of the near future, not of the past, and in purchasing a public utility plant we wish to know the intrinsic value in the near future, rather than in the past, and to know the intrinsic value of a utility plant for the future we must know how much its service will be needed in the future and if there will be a growing desire for its product by a prosperous community, or a diminishing desire from a declining population.

One of the fruitful sources of dissatisfaction with utility appraisement proceeds from the fact that proper utility appraisement does not seek the market value. Market value, besides being a trade between insufficiently informed purchasers and sellers, always represents the weakness and helplessness of one or the other, and, insofar as it does this, diverges from true or intrinsic value. Large sections of the public accustomed to taking trade advantage of the helpless cannot understand the necessity for careful investigation and impartial analysis of utility values by an inquiry confined to intrinsic value.

Granted, therefore, that utility plant value depends on the relation of a human need to its supply, that it is the intrinsic or true relation that we seek, and that a large part of this relation admittedly depends upon future tendencies and developments, how shall we proceed and what shall be our tools with which to work in order to produce practical results? Obviously, we only need to begin with the facts of the present and predict the rest so far as we reasonably can.

Strictly speaking, the actual past cost investment of a utility lacks all the significance unless of recent construction, or unless such past cost investment has been increased by all its appreciations of value and decreased by all its losses.

Reproduction Cost Less Depreciation

This latter method theoretically should give us the present reproduction cost less depreciation, and, provided the public needs and their source of supply continue in a state of equilibrium, this theoretically should be equivalent to intrinsic value.

But as a practical problem no intelligent being, no matter how expert he may be, can trace out all the appreciations and depreciations of a long life history of a property and correctly determine their influence in terms of money, and add or deduct them, as the case may be, to the original cost and capital account. It is too gigantic a problem for the human mind in the first place, and the data are almost never available in the second place, even if the human ability to make proper use of it were to be found.

Such influences as increasing human needs, human endeavor, as reflected by the management, fortunate attitude of the public or growth in community enterprises are constantly adding value to utilities, while wear and tear, changes in the art, alterations in custom of the public are examples of forces certain to result in losses.

In valuation work most studies of past cost do not attempt to bring the investigation beyond a year-by-year statement of cash expenditures, and as such it is incomplete.

It is almost as though we should try to determine the attitude of the future politics of present-day Egypt by a critical examination of the papyrus rolls in the British Museum.

Now, we can avoid much of the dilemma occasioned by trying to reduce past cost down to present and future value by using the method of reproduction now, or cost new as of to-day. This is not a simple or easy method for those inexperienced in actual construction, but the great advantage of estimating cost now as of to-day lies in the fact that it is unnecessary to deal with all the subtle influences that have been added to or have been lost from the past cash investment, the record of which is so difficult to obtain or to interpret.

Reproduction now, as of to-day, deals with present information easily obtainable and readily verified. It places us at once in the position of expending our time to good advantage upon present conditions and leaving us some time and opportunity for analyzing the future influences, whose considerations are so important.

Based on Fundamental Principles

Reproduction now as of to-day is a method which has some fundamental principles, the most important of which is that, while purely a mental process, it must be conceived and followed through in a manner which is humanly possible, or else the measure which it is supposed to give is false and misleading. Unless the appraiser himself has lived through and experienced not one but many actual constructions of a similar kind, he will be misled by the ease with which his imagination can overcome obstacles and perform prodigies. To minds inexperienced in construction, the reproduction method becomes a magic wand waved over the property to be appraised, with the result that it is immediately and astonishingly recreated without any difficulties or embarrassments, such as are encountered in dealing with human nature and overcoming the ordinary obstacles in the building world.

The commonest mistake is to forget that time or preparation is necessary to rebuild a property. To the novice it suddenly exists. This marvelous result is accomplished by a multiplication table, a price list and a hasty inventory.

It has also been solemnly proposed to price present property at part unit costs as a fair basis for utility rates, as though such a combination could actually exist in real life or were at all useful. Imagine the possibility of creating ships to-day at pre-war prices! That, truly, would be magic.

Wise gentlemen have seriously proposed to begin the reproduction process several years in the past, so that the imaginary utility plant would be finished at the rate of valuation of to-day. These wizards would have been invaluable to the United States at the beginning of the war, because all war preparations would have been complete at the breaking out of hostilities and all the talk about lack of prepared-

ness would have been wasted could they have been in charge.

Some estimators, in a sort of distrust of reproduction methods, prefer to discover what past cash cost of a property has been in the year-by-year method, and then make a reproduction cost estimate to correspond with the total. Past cost thus found is sort of an assertion that past cost may not scientifically control, but is, nevertheless, right.

As to Going Value

One of the most hotly supported fallacies has been that the physical property of the plant may be reproduced, but the financial transactions, business and income reproduction must be omitted. This is the famous "Going Value" controversy, which will long continue to receive distrustful protests from the adherents of magic reproduction.

Reproduction cost, new as of to-day, if it is not to be worse than useless or even positively deceptive, must be thought out in every detail, as if a real plant was being constructed; it must be initiated at the date of valuation, as would only be humanly possible, and progress thenceforward over reasonable period of time. It should be financed, planned, projected and constructed without magic, without omission of difficulties, without impossible speed, and without startling freedom from human vicissitudes, natural obstacles and ordinary delays, and finally it should be carried to completion not only as to its physical property, but as to all of its financial relations and income.

Because the existing plant to be valued usually is not new, and the reproduced financial effigy of it is new, the latter must be reduced by the amount of depreciation that the existing plant has undergone to make the reproduction correspond to an old plant rather than a new one.

When all this work is conscientiously and fairly done, and done by nature and intelligent valuators, we have a useful beginning, a stepping-stone or yardstick with which to consider present and future value.

For reproduction when completed is not necessarily value. Value, as I have before stated, is dependent upon future usefulness as well as present efficiency. I have before cited the gold mine with its splendid plant and organization which has no further ore in sight. Evidently reproduction there is not value. Far from it. Something more than a reproduction method or yardstick is necessary. Future conditions and probabilities must be examined before we are at liberty to come to final conclusions.

Future Tendencies

To successfully prophesy the effect of the future on any property, we should examine the tendencies which in the near future may or may not make it stable and permanent. Some of these considerations are:

First—Is the community prosperous and growing? Is the service needed and will it continue to be increasingly needed?

Second—Is the plant well designed and well fitted for its work; can it be easily enlarged and is its location permanent?

Third—Has it been properly and economically financed and operated?

Fourth—Is the service reasonable to the consumer; that is, really worth as much or more than he pays for it, and will this condition continue? In other words, will the service continue to be reasonable?

Carefully analyzed in connection with the past history, the reproduction cost, the normal or abnormal condition of prices at the time of estimating reproduction, these data are before the appraiser's mental court of inquiry for a final conclusion. Such conclusion should be as nearly as possible the intrinsic value of the property in the near future and not the market value of the present, or the summation of the past investment.

What sound valuations should accomplish is to create and maintain good service by the utility at reasonable rates; that is, at rates so productive that there is an incentive to keep adding capital to the enterprise and at the same time so just that the consumers can obtain no better service elsewhere for the same money. If these conditions do not obtain at the present, and cannot obtain in the near future, then that particular utility cannot profitably exist.

How the Gas Companies Are Helping the Nation

Joseph Knopp, of St. Louis, auditor for the Granite City (Ill.) Gas Company, has been notified by the War Department that his son, Richard, a member of the 117th Engineers, was killed in action in France. Young Knopp was less than nineteen years of age when he enlisted. He was one of the first to go to France.

Former Employee of Laclede Company Killed in Action

A gold star has been placed on the service flag of the Laclede Gas Light Company, of St. Louis, for Private Thomas A. Kunz, who made the supreme sacrifice on Sept. 25, according to a notification to his parents from the War Department. Young Kunz left the gas company to enlist in February, 1917, and he was a member of the first section of the American Expeditionary Forces to go to France.

James Lee, of West Lynn, Mass., a cashier at the Lynn Gas & Electric Company, is now in France with Battery C of the 301st Regiment.

The Consolidated Gas Company, of New York, and affiliated companies' employees held a meeting Sept. 30, at which 1,000 subscriptions were received for the Fourth Liberty Loan from 1,000 men and women. The total was an even $1,000,000.

The Beverly Gas & Electric Company, Beverly, Mass., has a splendid display of posters for the Fourth Liberty Loan at its offices on Cabot Street.

Where Do the Pennies In Your Dollar Go?

General Accounts Do Not Tell Business Man Much—Cutting the Average Dollar Up Enables Executive to Better Plan His Work—a Method of Cutting the Dollar in Business Like An Apple Pie

Can you dramatize your business? asks H. S. McCormack in *System* for October. Can you show it in terms of one round dollar which you can hang up on the wall? When a check for thousands of dollars comes in, representing the sale of something, do you know how each of those dollars will have to be divided to pay expenses and what sort of a slice will stay with you as profit?

"Of course I could—if I wanted to," you would probably answer, "but what would be the use? I have full accounts and they tell me everything that I need to know."

Do they? Undoubtedly all the information is contained in your accounts, provided that they have been kept correctly on a modern plan of bookkeeping. But do the gross figures mean anything to anyone in the concern outside of the bookkeeper or accountant, and are they any more than nice figures to him?

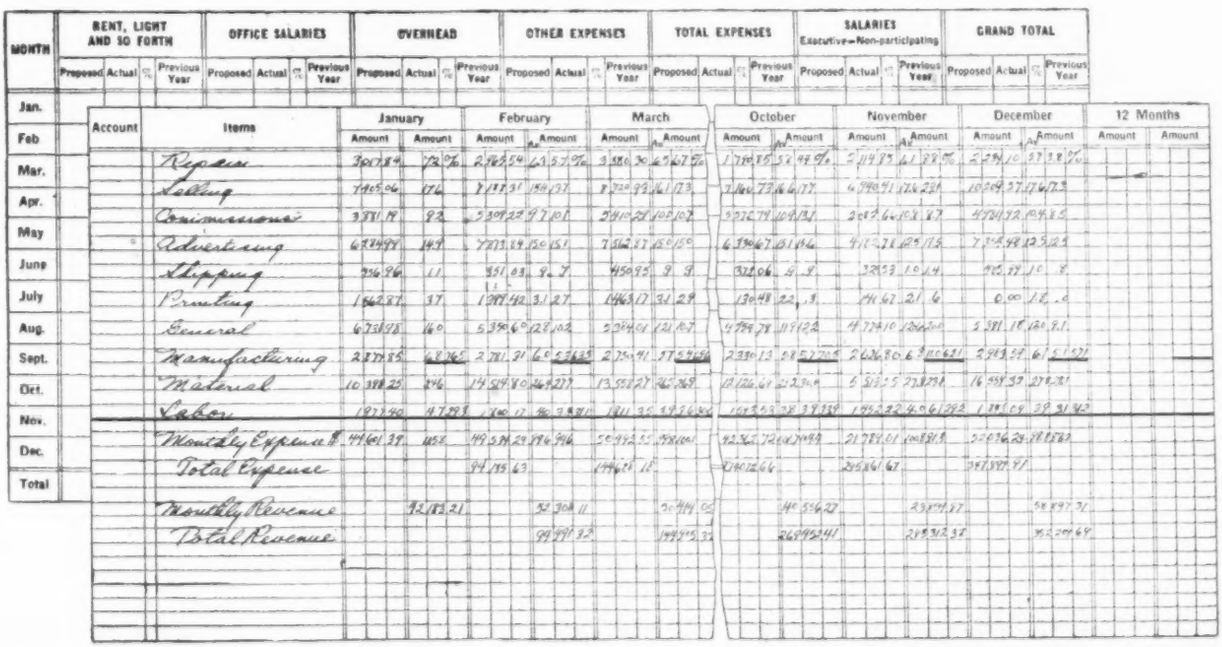
The Usual Method

The business man who answers honestly will, as a rule, have to confess that his accounts do not say very much to him and that every once in a while he finds it necessary to call in an auditor not only to audit but also to tell him exactly how the business stands. Further, if pressed, he may confess that the plans for a season or a year are not always made with strict reference to a budget, but rather on a general idea that everybody is "to get together, speed up sales, and keep down expenses."

I know that this is a true exposition of the mind of the average business man, for I have asked hundreds of them just what their accounts convey to them and, with rare exceptions, they have to admit that they do not convey much. This is not strange; the ability to grasp figures is not commonly a part of the executive mind, just as the accounting mind is infrequently an executive one.

I am no longer amazed to find executives who cannot get much out of their financial statements, sales reports, expense reports, and comparative reports where all of the results are expressed in totals of dollars. Of course they do get something out of the tabulations, but the figures are so large—even in a small business—that the mind does not grasp and relate the items.

Especially is this true when the gross income is increasing and all of the expenses are so high that they cannot well be related to the same items in the report of the previous year. With prices as they are to-day, gross figures convey precious little meaning, for there is nothing in the past to compare them with. Many concerns are thus getting out of hand simply because they do not know the relative meaning of their departmental statements. With labor and materials advancing nearly every month it is indeed hard to size up totals and pass the right increases on to the price of the finished product.



TWO WAYS OF WATCHING RESULTS—UPPER FORM IS USED AS A MEANS OF COMPARING ACTUAL RESULTS WITH THE BUDGET. LOWER FORM IS A WORKING SHEET FOR COLLECTING THE MONTHLY TOTALS IN BOTH THE DOLLAR AND GROSS AND PERCENTAGE FORM

And if there is apparent a book profit, how much of that must go for war taxes or contributions? Many, many organizations are at sea without either chart or compass; they know they are on their way and that is all; they do not know where they are going to get off.

A gross figure is utterly useless as a business guide; a statement of income and outgo is a valuable historical record of transactions, but it does not in the least forward the business unless it points out in comparative fashion what the gross figures really represent. A figure, no matter how many thousands of units it comprises, is only a figure until we know what it stands for, then it becomes a living thing that can be seen and talked to.

Division of the Sales Dollar					
Main Divisions		Sub-Divisions		Further Sub-Divisions	
Production	.4189	Material	.2028	Raw Material	.0550
				Finished Material	.1478
		Productive	.1500	Factory	.1020
				Repair Shop	.0480
		Repairs	.0393	Expense	.0141
				Salary	.0252
		Overhead	.0268	Expenses	.0122
				Salary	.0146
Marketing	.3852	Selling	.1353	Travelers	.1122
				Salesmen	.0231
		Commission	.0399	Travelers	.0245
				Brokers	.0154
		Advertising	.1502	Space	.1101
				Printed Matter	.0401
		Shipping	.0324	Labor	.0113
				Material	.0211
		Overhead	.0274	Expense	.0141
				Salaries	.0133
Administrative	.1297	Office Expense	.0688	Expense	.0143
				Salaries	.0545
		Executive Expense	.0446	Active	.0314
				Supervising	.0132
		Interest and Discount	.0163	Current	.0112
				Taxed	.0051
Net Profit	.0662		.0662		.0662
Sales Dollar	$1.00	Total	$1.00	Total	$1.00

HERE IS A TYPICAL REPORT FROM ONE CONCERN SHOWING HOW THE SALES DOLLAR HAS BEEN ANALYZED

Dividing the Dollar to Show Where It Goes

Translating a business into the term of one dollar puts life and speech into figures so that they can fulfill their true mission of telling the executive how his affairs are going. As one corporation president not long since said to me:

"I have been in business seventeen years—so I thought—but I was never really in business until the day that you proved to me that there were 100 cents in a dollar—until you pointed out to me that I should know exactly where every cent in every dollar of income went."

When expenses are reduced to cents and mills of a dollar anyone can comprehend the relations. The procedure is simple. Take the gross income (excluding income from other than sales—rents, investments, or what is commonly grouped in a report as "other income") and find the proportion to it of any expense item; this will give the proportion in terms of a dollar.

For instance, if the gross income in a month is $42,183.21 and the selling expense is $7,405.06, then 17.6 cents out of each dollar of income goes for selling expense. If on this total income the expenses are $44,601.39, then the expense will be 105.8 cents, which means that the concern is running behind—it is costing more than a dollar to earn a dollar.

The expense divisions may be according to the desires of the executive and in as great detail as he wishes. The basic divisions are manufacturing (or production), administrative and selling (or marketing), if the business fabricates; if it merchandises only instead of fabricating, then manufacturing will be replaced by cost of goods bought or some similar term. The terminology is not at all important; the only thing that counts is that the divisions be logical and adhered to, otherwise it may be impossible to make the proper comparisons.

Here is the dollar division of one rather large concern; the items explain themselves:

Manufacturing:	
Material used	$0.332
Direct labor	.145
Salaries of superintendents and foremen	.013
Miscellaneous indirect labor	.038
Heat, light and power	.017
Repairs to buildings	.005
Repairs to machinery and machine tools	.009
Repairs to factory fixtures	.001
Repairs to perishable tools	.004
Repairs to patterns	.009
Taxes on plant and stock	.008
Insurance—fire	.008
Insurance—liability	.004
Factory supplies	.015
Experimental work	.008
Depreciation on plant (reserve charge)	.024
Administrative:	
Salaries—executive officers	.080
Salaries—office employees	.042
Stationery and office supplies	.002
Postage	.009
Telephone and telegraph	.400
Depreciation on office furniture and fixtures (reserve charge)	.000
Charities and donations	.003
Taxes—state and Federal	.006
Incidentals	.006
Doubtful accounts (reserve charge)	.001
Selling:	
Salaries—traveling salesmen	.060
Traveling expenses	.010
Advertising	.050
Stationery and office supplies (proportion)	.003
Postage (proportion)	.006
Shipping labor and expense	.016
Miscellaneous selling expense	.010
Profit	.051
	$1.000

Or take another manufacturer who handles a specialty and advertises nationally:

Marketing:		
Selling	$0.135	
Commission	.040	
Advertising	.150	
Shipping	.032	
Returned material	.028	
		$0.385
Administrative:		
Administrative	$0.069	
Interest	.016	
Special contract and interest	.045	
		.130
Manufacturing:		
Manufacturing	$0.027	
Repairs	.039	
Material	.303	
Productive labor	.050	
		.419
		$0.934
Profit		.066
Total		$1.000

In both of these concerns the profit was satisfactory because each business found its strength in volume of sales—a quick turnover at a comparatively small profit. The figures are interesting, but they would not be of great help in cutting down expenses unless presented in connection with previous years. In the following table the expenses for three years are compared, and it will be seen how the rising cost of materials has cut into profits.

This concern had to advance wages, but it installed a bonus system and also improved machinery to such an extent that the unit production costs were actually no greater in 1917 than in 1915, although the costs were higher than in 1916, when the first wage increases were more than met by greater efficiency.

It will be noticed here that most of the salary and expense items have been reduced; this was due, not to cutting, but to increasing the volume of the business, and thus lowering the percentage charge of the items.

Here is the table:

Administrative:

	1915	1916	1917
Salaries and expense	$0.050	$0.0310	$0.030
Office salaries and expense	.057	.0440	.028
Salesmen salaries and expenses	.089	.0940	.094
Advertising	.044	.0500	.050
Rebate and cash discount	0.29	.0250	.020
Freight and express	.025	.0236	.021
Free sampling	.006	.0070	.008
Miscellaneous expense	.013	.0130	.013
Shipping expense	.012	.0113	.010
Stable expense	.005	.0040	.003
Fixed charges	.069	.0620	.050
Materials	.165	.1885	.201
Direct labor	.196	.1850	.196
General manufacturing expenses	.210	.1790	.120
Total	$0.970	$0.9174	$0.844
Profit	.030	.0826	.156
	$1.000	$1.0000	$1.000

Presented in the single dollar form it is quite impossible to escape or overlook wastes. If a loss has been made during the month, as in the case given where one dollar of income cost 105.8 cents to procure, an investigation is at once in order. In that instance a careful study showed that few of the expenses could be lessened in their gross, but that the concern was not making and selling at its organization capacity. Through eight months a campaign of intensive selling was conducted. The result was that in the eighth month it cost only 88.3 cents to bring in a dollar.

The gross selling expense was nearly $3,000 more that month than in the first, but the cents value dropped from 17.6 to 17.3, and, while a quarter more was spent in advertising, it cost only 12.5 as against 14.9.

These are not spectacular remedies, but few dramatic changes are necessary to put the average business on its feet. More often than not a great drastic change will ruin a concern. The real difficulty is naturally that no one knows what is the matter—no one grasps the figures. If they "economize," it is in the dark, without knowing what the results may be.

Division of the Expense Dollar

Production	October Amount	October Per cent	November Amount	November Per cent	December Amount	December Per cent	Grand Total Amount	Grand Total Per cent
Manufacturing	$2,452.32	2.0101	$2,124.18	1.7172	$2,132.30	1.9725	$26,873.64	2.68
Repairs	3,380.34	2.7708	3,222.86	2.6054	3,222.92	2.9814	39,257.34	3.93
Materials	25,098.18	20.5722	25,098.18	20.2895	21,015.62	19.4409	302,857.85	30.23
Production Laboratory	4,827.80	3.9572	3,862.24	3.1222	4,762.64	4.4058	50,000.00	5.00
Total	$35,758.64	29.3103	$34,307.46	27.7343	$31,133.49	28.8006	$418,988.83	41.89
Marketing								
Selling	$12,287.23	10.0715	$11,573.01	9.3557	$11,412.26	10.5572	$135,294.34	12.53
Commission	3,754.05	3.0771	3,806.44	3.0771	12,436.24	11.5040	39,881.83	3.99
Advertising	19,435.00	15.9303	11,794.00	9.5344	27,040.00	25.0139	150,160.00	15.02
Shipping	2,392.88	1.9614	2,984.42	2.4126	1,983.17	1.8346	322,422.12	3.24
Retail Material	2,100.00	1.7213	2,500.00	2.0210	1,000.00	.9251	27,400.00	2.74
Total	$39,969.16	32.7616	$32,657.97	26.4008	$53,971.67	49.8347	$385,158.29	38.52
Administrative								
Administrative	$6,660.09	5.4591	$6,025.51	4.8710	$5,842.51	5.4047	$68,783.44	6.88
Interest	1,500.00	1.2295	1,500.00	1.2125	1,500.00	1.3876	16,300.00	1.63
D.Bros.Cont. and Int.	4,037.50	3.3094	4,057.51	3.2601	3,803.33	3.5183	44,583.08	4.46
Total	$12,197.59	9.9980	$11,583.02	9.3637	$11,145.84	10.3106	$129,666.52	12.97
Grand Total Expenses	$87,925.39	72.0699	$78,548.35	63.4988	$96,150.99	88.9459	$933,813.64	93.38

Estimated Sales Year 1918

Monthly Sales	October	November	December	Grand Total Year 1917
	$122,000.00	$123,700.00	$108,100.00	$1,000,000.00

THIS REPORT SHOWS THE TOTALS OF EXPENSES IN DOLLARS AND CENTS, ALSO PERCENTAGES, BASED ON THE SALES DOLLAR AS 100 PER CENT

Locating Best Economies

The best economy may often be the spending of more money in certain directions, as in advertising or selling; economy is only a relative term, and if a general cut is ordered without plan or reason, and merely to "save money," the result will, like as not, be a damaged business. The real economy is to get more out of what you have instead of decreasing the gross cost of what you have. To limit an enterprise by parsimony is only

to start liquidation. That is the old—and very common—penny wise and pound foolish idea.

But the dollar system is not merely dissection—it also has its constructive side, and this is of the highest importance. It can and should be used to plan the work ahead and to furnish a check on operations from month to month, or from day to day, for that matter, if it is so desired. It is the foundation of a budget.

Let us say that the gross business of the previous year has been $100,000 and it has not yielded a satisfactory profit. The definition of "satisfactory profit" depends upon the nature of the business. For this instance we will take 10 per cent—only 90 cents out of every dollar of income should go to expenses.

A study has shown that none of the departments of the concern can well be cut into without breaking up the organization, but that all could handle more business than in the past; better methods will save some money, but not enough to bring the profit on $100,000 up to the mark. But if the concern can handle $150,000, the overhead expenses will be so much less in proportion to volume that the desired profit can be realized.

Therefore the executives decide to press for new business. They calculate the extra sums necessary for raw material, labor and such other items as will increase with the greater volume, and then, taking the gross amount which each department should spend under the bigger business, they reduce this to terms of a dollar, and thus have a budget for the year in fractions of a dollar.

With a budget percentage analysis as shown, the results each month are compared with the budget and a constant check is kept on operations. The executives do not have to wait until the end of the year to discover how they will come out; they know from the figures that unless the actual cents of each dollar are less than the budget the planned result is not going to be achieved. The check on expenses is not only constant, but intelligent.

The first step toward better business is knowing exactly where you stand. The simple little dollar division gives any executive that knowledge.

Sees Strengthened Position for Utility Securities as a Result of Understanding Brought About by War

E. B. Merritt Finds Shrewd Investors Shifting to Public Utilities for Permanent Investment

The past four years have witnessed many changes in the security markets and the investing public has had to adjust itself to many new conditions, declares E. B. Merritt in *Bond Talk*, published by P. W. Brooks & Company, of New York. Following the period immediately after the outbreak of the war, when gloom and pessimism were prevalent everywhere, came the revelation of the part this country was to play in furnishing ammunition and supplies to the warring nations. The corporations engaged in this traffic were reporting new contracts almost daily, and the profits were so large that their securities doubled and trebled in price. Speculation became the watchword and the principles of pure investment seemed to be forgotten.

Speculators Lose

With the entry of the United States into the war and the inception of new tax programs, the public's attitude underwent a change. The many demands on its purse for contributions for necessary war work and the Liberty Loan campaigns had their effect. Prices declined, and many who entered the market with the expectation of large profits were content to escape without the loss of their principal. They found themselves possessed of securities that had declined in price, and instead of the expected profits they were fortunate to escape with a moderate loss.

Through this whole period there was one class of securities that attracted little attention—public utility bonds and preferred stocks did not yield very high returns in comparison with the "war brides," and the preferred stocks had somewhat lost favor in 1914 when, owing to the difficulties of new financing, they were forced to conserve their assets and strengthen their cash position by either paying their dividends in scrip or not paying them at all.

Utility Bonds Weather the Storm

The first mortgage bonds, however, had safely weathered the storm in 1914 and had strengthened their position in the days of prosperity that came in 1915 and 1916. With the close of 1917 their position was weakened by the coal crisis, although the bonds of the stronger companies were never in any danger.

Problems of 1917-18

The public utility companies had seen their labor and material costs rise, but the increase in earnings was more than enough to offset these increases in expenses. The coal crisis of the winter of 1917-18, however, occasioned real hardship. Many of the companies had fuel contracts that had years to run, and with these, although prices remained unchanged, the main problem was to secure a sufficient supply of coal; other companies not only had to solve that difficulty, but were forced to purchase their fuel in the open market at top prices. Their contracts having expired, they were unable or unwilling to make new ones at prevailing prices and had to find their coal wherever they could.

Strong Position of Bondholders

The increased cost of fuel caused operating costs to rise and the difficulty of obtaining coal, forcing the payment of a bonus to ensure delivery, made the situation worse. It was then that the wisdom of purchasing the bonds rather than preferred stock was demonstrated. It has been the practice of conservative bankers engaged in financing public utility companies to refuse to offer to the public the bonds of companies that were not showing net earnings of at least double the interest charges on their bonds. In many cases the companies were earning three, four and even five times the required amount, and this surplus served to protect the bondholder against the higher operating costs. Some of the weaker companies, being unable to earn enough to meet their charges, succumbed, but in no case where the banking house offering the bonds had insisted on a safe margin did the bonds default.

Importance of Public Utility Companies

When the fuel situation became acute it was quickly recognized that any condition which hampered the operation of the public utility companies was fatal to the country's welfare; serving a vital public necessity, it

was absolutely necessary that they continue at the high pitch of efficiency. They are no longer to be regarded as a purely local institution, but have a highly important place in the economic life of the nation, and any restriction of their activity menaces the Government's whole war program.

About 75 per cent of the power generated in the power houses of this country is being used in industries necessary to the conduct of the war. The labor engaged in munition work, shipbuilding and other industries must be transported by the electric railways; the light in their homes and factories is furnished by the local lighting company; the local gas company not only furnishes them with fuel and heat, but produces as a by-product toluol used in making explosives. Let a few of these companies stop operating and chaos would result.

Second on the List of Essential Industries

President Wilson's letter placing public utility companies second on the list of essential industries had an immediate effect. The companies received an increased supply of coal and, as the situation cleared, they were able to accumulate reserve supplies to tide them over during interruptions to traffic owing to weather conditions, etc.

Increase in Rates Given

Higher operating costs also came in for attention; rates are largely under control of local and State commissions and at first these commissions were slow in showing a disposition to grant increases. Local sentiment and political situations had some influence, but President Wilson, seconded by Secretary McAdoo and Comptroller of the Currency Williams, called on the State and municipal authorities to act. The response was general and liberal rate increases were granted where the company could show that they were necessary. In some few cases the commissions even granted increases larger than those asked for by the company. In one month—April—479 public utility companies received rate increases, and many have been granted since, while a larger number are being investigated. The street railways can be used to illustrate the extremely liberal policy that is being followed. There are sixty-seven cities of 100,000 population, or more, in the United States; fifty-seven have granted increases in fares or have applications pending. Cleveland, famous for its 3-cent fares, authorized the Cleveland Electric Railways, beginning Aug. 4, to charge 5 cents for a cash fare, six tickets being sold for 25 cents. The Boston Elevated increased fares to 7 cents, and many cities are paying 6. Another form of increase is the zone fare. This is being adopted both in the cities and on the suburban and interurban lines. Where this is in force the company collects more fares than formerly for the distance traveled.

Public Utility Administration Recommended on Aug. 2, 1918

Supplementing the numerous rate increases and other measures of relief, no effort is being relaxed to prevent a recurrence of the situation. A dispatch from Washington under date of Aug. 2 states that the National Association of Railway and Utility Commissioners, representing practically all State commissions, has recommended to President Wilson the establishment of a National Public Utility Administration. The association's proposals, contained in a letter to the President, were, in part, as follows: Establishment of a National Administrator, or board of three, with power to recommend, advise, or request to the State or municipal authorities. Use of State commissions by the Federal Administrator, or board, for all purposes of inquiry, investigation, ascertainment, and report of facts, and cooperation in recommendation, where needed, to the local authorities.

Utilities Strong When Peace Comes

In view of the foregoing, it is assured that no matter how long the war lasts public utility bonds will continue to be classed among the safest form of investment. The investor, however, is beginning to consider another factor; he knows of other securities that have come safely through the war; now he wants one that will not only insure him of safety and income while the war lasts, but will also prove its worth when peace is restored.

Public utility bonds also meet this test. The soundness and earning capacity of the companies have been demonstrated under the stress of war conditions and the restoration of peace will find them much stronger. They have profited not only from the increase in rates, but from the changed attitude of the public as well; the value of the service they render has never been sufficiently appreciated in the past, with the solution of their difficulties a new sense of their importance has dawned on the people and a more friendly attitude can be looked for in the future.

Attractive Prices of Bonds

Bond prices are low, and sound first mortgage public utility bonds can be bought to yield from 6 to 7 per cent without sacrificing security. The investor can select bonds which are an absolute first mortgage on properties that have been appraised by the State public service commissions or reputable engineers as being worth from two to three times the amount of the bond issue; these same properties have an earning power that will enable them to report net earnings of from three to five times their interest charges and permit them to accumulate a surplus for future needs after taking care of sinking fund requirements. At prevailing prices there are also prospects of substantial profits through the increase in market value due to recognition of their strong position when security prices return to somewhere near their normal levels.

Shrewd Investors Shifting to Public Utilities

Shrewd investors are taking advantage of the present market and are changing their low interest-bearing bonds for public utilities. By doing so they average up their income from bond holdings which has been reduced by the comparatively low yield of their Liberty Bonds and receive a rate that will offset the high taxes which they will be compelled to pay. They are also looking into the future and shifting funds from short-maturity notes into long-term bonds. This results in an income of from 6 to 7 per cent from a first mortgage public utility bond for from ten to thirty years instead of about 7½ per cent from a debenture or collateral secured note for from one to three years. Whether they are placing a new fund or changing money already invested, these long-headed individuals claim that public utility bonds deserve and are entitled to first consideration when seeking a medium for permanent investment.

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The Finish Begins to Glimmer Through

The Hun is beginning to see something. And that something isn't pleasant to contemplate. For the first time in four years the possibility that he might be licked is beginning to penetrate his somewhat dense skull.

High hopes have been raised in some quarters that the year's end will see the war's end. An unconscious injustice is being done our soldiers through the delusion that all the Allies have to do is shoot a cannon and walk ahead to a certain victory.

Such is far from the case. The individual Hun during the next few months is apt to be a more dangerous fighter than he ever has been previously. He has been goaded to the courage of despair by his officers telling him that the Americans kill their prisoners. Because he knows that this is the very treatment he deserves he readily accepts this falsehood as gospel.

It isn't a pleasant prospect for one who has perpetrated the outrages the Hun has indulged himself in to realize that the other fellow is likely to get the upper hand. This is a human world, and humanity concedes certain punishment for certain crimes. The Hun knows what his crimes have been, and knows what the punishment should be, and possibly will be. Hence there will be a despairing effort to delay it as long as possible. The natural thing to expect will be a desperate, perhaps long drawn out, constantly rearward action. This will cost lives and treasure, and will be trying to the patience, but it will be carried through.

While all depreciate the possibility of the war's ending before next summer at the earliest, we have encountered no authority who positively states that it cannot end earlier. Based on the purely military phase, it will take even longer to finish.

But the question of psychology enters. Without an uninterrupted flow of munitions the German army, desperate though it be, cannot contend against the armies of retribution pressing against its front. Shatter the home front and the task of our armies in shattering the Rhine front will be rendered immeasurably easy—perhaps even a walkover.

Some are afraid that the prevalent optimism created by the recent uninterrupted series of Allied victories may hold back subscriptions to the Liberty Loan. The AMERICAN GAS ENGINEERING JOURNAL cannot accept this view. It would be tantamount to declaring that Americans have to be scared to be loyal, that as a people we lack common sense.

There is greater need of subscribing to this Fourth Loan than there was to any that preceded.

In those loans we were merely paying the way as we went. In the Fourth Loan we have the opportunity of doing this and dealing a blow towards the German demoralization that will be more effective than could be struck by a million armed men.

The President at this writing has in his hands the

latest play of the partially routed enemy for a peace with the profits of his burglary retained. The indications are that the plea will be firmly denied. The German press, as in the past, will rail out at "Wilson's" inexorability, at his imperialistic tendencies in the face of a nation unsympathetic towards the war. If about that time the Fourth Liberty Loan campaign rounds up with an oversubscription that will tax Mr. McAdoo's brain as to what to do with it, the German people will be told plainer than words could convey to them that Mr. Wilson's inexorability is not one, two, three to that of the American people. Thus a blow will be dealt to the German home front that may mean more than a twenty kilometer retreat in Belgium or northern France, particularly since the Imperial German Government is just now trying to float a ninth loan that bids fair to fail miserably.

Look about as it will the AMERICAN GAS ENGINEERING JOURNAL does not see how the war possibly can end before the new year. Such a short time remains for fighting and there is so much to be done. But a very effective means the American people have in their hands for shortening hostilities appreciably and lessening the number of missiles that will lodge in the flesh of their own blood is that of a rousing oversubscription to the Fourth Liberty Loan. The Hun is groggy. Put him down and out.

Leon B. Jones Enlists as Private

Had Leon B. Jones not been the son of E. C. Jones, chief engineer of the gas department of the Pacific Gas & Electric Company, he would be to-day one of the most prominent gas engineers of the country. His achievements have been noteworthy, but none of them have brought him the renown that would have accrued to the bearer of a less well-known name, for his father has been more than an eminent scientist in the regard and respect of the gas industry—in fact, it is difficult in the face of his social geniality to remember that he is a scientist at all. His name has predominated in the gas industry for almost a quarter of a century.

The son was the originator of oxy-acetylene welding of steel gas mains, a development whose importance to the present-day gas industry does not need to be explained in a journal of this kind. Much of the credit for the development of the latest Jones apparatus for making gas from oil undoubtedly belongs to him.

Men have attained high places in the history of the gas industry for lesser achievements than have been accomplished by Leon B. Jones.

But he has not reaped half the glory he deserved because he has worked under the handicap of his father's name.

Undoubtedly he has benefited greatly from the inspiration and guidance that he has had through the intimate association with his father because of his relationship. Possibly it might have taken him longer to have attained his present mental plans had he not been so advantageously situated. Nevertheless, his father's prestige has tended to eclipse his own achievements and deny him a good part of the renown he has rightfully earned.

Leon B. Jones has given us one of the big shocks of the war. He has found drab science a personally unsatisfactory means of helping to win the war. Despite the fact that he was contributing considerably to the development of means to recover toluol, despite the fact that he has assisted materially the gas defense service, apparently he felt he was not doing enough—would not be until he was exposing himself on the same line of peril as an active fighter among his countrymen. He didn't think he could do this if he went in as an officer—they might apply the selective principle to him and keep him at the same kind of work he had been doing. So instead he went in as a private as the most direct means of getting to the place the human side of him impelled him to—the firing line.

His case puts a difficult proposition before us in the way of comment. As a flat proposition we cannot approve. A man of his training and ability is most effectively placed where he was. Yet there is there a human appeal to it that deters expressions of disapproval—the same kind of a human appeal that put a grin on the countenance of every citizen when those young sailors who had enlisted for active fighting, finding themselves stationed for a longer period than they approved on a coast guard ship, hoisted a service flag on a combatant vessel of the U. S. Navy when two of their fellows were transferred abroad. Of course, no one would approve of such an action as a general proposition. If very prevalent such conduct might have a demoralizing effect on discipline. In the same way, if many men so qualified as Leon B. Jones decided to gratify the perfectly human impulse in war-time to service where the danger lies, the result would be a loss rather than a gain to the national effort.

This is the second of the sons of E. C. Jones to enter the combatant service. Evidently the Jones family's conscience impels it to oversubscribe its quota of sacrifice, and that is a good kind of conscience to have. There is increasing likelihood that it will not come through the war without scars.

Yet the thought of sympathy for the father does not even enter one's mind. This veteran, who has been engaged in the gas business since 1876, is probably working harder to-day than he ever did. He was over a quarter of a century building up an organization in the gas department of the Pacific company, and we have seen pillar after pillar of his organization drop out to enter the national service. Yet we have heard of no falling off in the efficiency or activity of his department of his company. The AMERICAN GAS ENGINEERING JOURNAL has no doubt from its knowledge of E. C.

Jones that he has calculated the possibilities ahead of him and is prepared to pay the price. This is Americanism, and there is no man in the gas field better adapted than he, with a decade and a half of gas company activity in the extreme East and more than a generation in the extreme West, to be the physical expression of this spirit. He is an Easterner—a New Englander—and at the same time a Westerner, the most cosmopolitan figure as applied to the borders of the United States, in the gas industry.

More About Overdoing It

Notice has come to us to the effect that in one or two public buildings—there may be more, but these are the only ones which have come to our attention—that were patriotically endeavoring to conserve coal the discomfort and menace to health of trying weather conditions have compelled a partial reconsideration.

These buildings were endeavoring to do without heating of any kind until Nov. 1. The results, among others, were "a clerk was forced to give up work temporarily" and a commissioner "told the women clerks to leave their work until such time as heat could be obtained."

These people are public employees. It is assumed that their labor is essential to the public welfare. The question arises: Is the fuel situation such that this lost time on the part of public employees is justified? Likewise is interference with such labors as are now being performed, through illness or conditions that threaten illness, necessary because of the extreme gravity of the fuel situation? If so, there is nothing more to say.

This country is anyways from a few months—should the unexpected happen—to a year or more removed from the attainment of a victory that is essential to its very existence. If the comforts, the self-interests, or the very lives of its citizens must be sacrificed temporarily for the attainment of that victory, then it is a good barter.

A few months of carefree, blissful existence isn't enough to compensate for a lifetime in a Prussianized world.

But we do not understand that the fuel situation, tense though it be, is this acute. Rather it is our understanding that it is human workers who are the big thing. And the human worker's time is precious, much more so than the few pounds of coal that are necessary to insure that it will be productive.

It is their ability to reason individually that, all other things being equal, gives American soldiers superiority over the foe they are fighting. The American civilian must not forget his has been the same mode of upbringing when his Government asks sacrifice of him. When Mr. Hoover asks us to conserve food it is not his intention that we will deny ourselves anything that will contribute to the maximum power of our bodies and brains. He would be more than satisfied with the proceeds of the complete elimination of waste. Likewise when Dr. Garfield asks us to save coal he does not want us to follow his urgings so rigidly that a portion of our time will be spent in bed instead of at our jobs where we belong, and, once we are at our jobs, that we will sit around shivering instead of being at our work.

For the public buildings we have reference to, they have reverted to gas heaters to remedy the situation without the necessity of burning coal direct for their heating. This is sane and logical. It doesn't take much heat at this season to insure health. And this little amount, wood being unavailable, can be gotten from gas with a less consumption of vital fuels than by any other means.

Use Cement Staves in Gas Producer

A gas producer with outside shells made of concrete staves was placed in service recently by the Syracuse Industrial Company, Syracuse, N. Y., manufacturers of producer gas plants. In addition to an initial saving in cost over the steel plate producer, the manufacturers point out that "probably the greatest advantage is durability. All steel producers deteriorate rapidly around the bottom, where the wet ashes come in contact with the metal, and it often happens that the shell will be rusted through at this point, when all other parts of the apparatus are in comparatively good conditon. This also holds true with the scrubber shell, the bottom of which is at all times operating under wet and cold conditions, which make it especially susceptible to rust and corrosion by the gas. Another advantage is due to the fact that the staves can be made from the company's molds by any local contractor, and there results a saving of freight." It is claimed that it would be very easy to replace any of the staves, should they break, much easier than it would be to put a patch on a steel shell.

The producer shown is rated at 200 hp. and is about 8 ft. in diameter on the outside. The staves are each 2 ft. long and 10 in. wide, and of tongue and groove construction. When erected the joints are filled with a special fireproof cement, to allow for contraction and expansion. Each stave is 2½ in. thick, and is cast flat, but the tongues and grooves are arranged to suit the diameter of the tank. Each stave is reinforced by a piece of wire netting, which extends into the tongues on one side, and which reinforces one side of the groove, on the opposite side of the stave. To protect the staves from overheating, a 3-in. layer of Sil-O-Cel powder is placed between the staves and firebrick. This, it is found, prevents the staves from overheating and also acts as a seal to prevent leakage of gas through any small check or crack which might appear in the joints between the staves or in the staves themselves. The top of the gas producer is of cast iron and water-cooled, and rests on both the staves and the inside lining of firebrick. The top of the scrubber, which is also of concrete staves, is made up of sheet steel. The inside of the staves are given a coat of asphaltum paint to make them gas tight, and were mixed, when cast, with waterproof compound. Waterproof cement was also used in the joints, when the staves were erected.

Women Reading Meters of East Ohio Gas Company

The East Ohio Gas Company, due to man-power shortage, is now employing women to read meters and has twenty young women "collecting gas statistics." Most of them are married, their husbands either in the service or about to join.

An official of the company said the girls have made very few mistakes and the plan is working satisfactorily.

The women carry a badge identifying them as employees of the company, flash lights and the regular books. They wear ordinary street clothes.

New Stock Issue of Union Light & Power Company Approved

The board of gas and electric light commissioners has approved the issue by the Union Light & Power Company of 150,000 new stock, the proceeds from the sale of which will be applied to the payment of floating debt and cost of additions to the plant made subsequent to June 30. The company asked for the approval of $163,000 additional stock.

Two Cohoes Companies Merged Into One

Merger of the Cohoes Company and the Cohoes Gas Light Company into the Cohoes Power & Light Corporation, of Cohoes, N. Y., has been authorized by the public service commission. The commission's order provided for the transfer of all properties and franchises of the two old companies to the new company, subject to miscellaneous liabilities of $5,155.

The Cohoes Company was formed by Chapter 90 of the Laws of 1826. Under this authority it completed in 1831 and has since maintained a dam across the Mohawk River above the great Cohoes Falls and has operated a system of canals for the development of hydraulic power. The Cohoes Gas Light Company was formed in 1852, and it has manufactured gas and electricity with a generating station on the land of the Cohoes Company and operated by water from the canals.

The Cohoes Power & Light Corporation was organized in 1916 after the late Anthony N. Brady had conceived the idea of discontinuing the application of water through canals directly to the wheels and machinery of manufacturers and substituting for the old canal system a central modern hydroelectric plant to generate electric current in one plant and distribute it to manufacturers and various users.

Boston Consolidated Gas Output

Boston Consolidated Gas Company reports gas output in September of 492,498,000 cu. ft., compared with 485,865,000 during corresponding month of 1917, an increase of 1.4 per cent.

20,000,000 Cu. Ft. Well Brought in Near Medicine Bow

Cosden & Company is reported to have brought in a 20,000,000 cu. ft. gas well near Medicine Bow, Wyo. This company is a recent venturer in Wyoming, and only recently completed its first oil well west of Greybull. It is interested in several other prospective fields.

Wisconsin Company Sells Notes Direct to the Public

Announcement was made recently by the Wisconsin Edison Company, Inc., that one of its subsidiary companies, the Wisconsin Gas & Electric Company, had sold to the public by direct advertising $276,150 6½ per cent five-year notes secured by collateral deposit of first mortgage bonds. These notes were sold at par and were taken by investors not ordinarily reached in the sale of public utilities securities.

American Society of Mechanical Engineers to Meet in Indianapolis Oct. 25-26

The Council of the American Society of Mechanical Engineers meets in Indianapolis, Ind., on Oct. 25 and 26, and in connection with this meeting an elaborate gathering of the Indianapolis, Cincinnati, St. Louis, Chicago, Milwaukee, Detroit and Cleveland sections has been arranged. The Indiana Engineering Society, the Indianapolis-Lafayette section of the American Institute of Electrical Engineers and the Indianapolis section of the American Society of Automotive Engineers have also been invited.

The headquarters of the meeting will be the Claypool Hotel, where, also, the two professional sessions scheduled and the committee meetings will be held. While the hotel has ample accommodations for a large number of guests, and while no overcrowding is anticipated at this season of the year, members intending to go to Indianapolis should get in touch with the local committee and ask them to secure reservations for them in advance.

The program is as follows:

Friday, Oct. 25—9.30 a. m., registration at Claypool Hotel; 9.30 a. m., meeting of the council; 11.30 a. m., meeting of the committee on local sections and members of the executive committees of the Mid-western sections; 12.30 p. m., informal luncheon at the Claypool. The Mayor of Indianapolis is confidently expected to welcome the visitors and President Main to respond; 2 p. m., symposium on Fuel Conservation: "An Explanation of the Regulations of the Fuel Administration," by Dr. P. B. Noyes, director of Coal Conservation, U. S. Fuel Administration; "What the Fuel Administration Expects of the Engineers," by David Moffat Myers, advisory engineer, U. S. Fuel Administration; discussion, in which the administrative engineers of the Fuel Administration and members of the society will partici-

pate; 6.30 p. m., informal dinner at which nominee for president, M. E. Cooley, is expected to speak, followed by war pictures.

Saturday, Oct. 26—9 a. m., Symposium on Research. Opening address by Prof. Walter Rautenstrauch, member of the society's committee on research; address by Dr. W. J. Lester, vice-chairman of the Mechanical Engineering Division of the National Research Council; discussion by members of the society; 11.30 a. m., exhibition of the Liberty Motor; 12.30 p. m., informal luncheon at place arranged by the local committee; members and guests will be conducted in automobiles; 2 p. m., the committee is arranging a visit to Fort Benjamin Harrison, at which a large detachment of U. S. Army engineers is stationed. Full announcement will be made on the final program.

The committee hopes to arrange for members to visit both the Columbia Club, the features and functions of which are so unique as to call attention to it all over the country, and the Canoe Club, which has a large membership of professional and business men and a splendidly equipped building.

Committee meetings other than the ones mentioned include a meeting of the new committee on development, which is a committee appointed by the president and confirmed by the council to inquire into the aims and activities of the society in a similar manner to the committees of the civil engineers and the mining engineers.

The fuel conservation committee of the Engineering Council, which is connected with the Bureau of Mines and with the Fuel Administrator, and is studying and devising problems of fuel utilization, especially coal, will meet at a time and place to be determined.

Special arrangements will be made to take care of visiting ladies, and no pains will be spared to make this meeting, which is the first of a series of joint meetings planned by the sections committee, an occasion of benefit.

Finds Gas While Drilling for Water Near Bagley, Ia.

While boring for water J. M. Schoonover, of Guthrie Center, struck a flow of gas that shot into the air 60 ft. from a 3½-in pipe, on the farm of Percy Jackson, east of Bagley, Iowa.

Two Indiana Companies Petition for Increase

Two public utilities filed petitions with the public service commission asking for increases in rates because of war conditions and operating costs.

The Greencastle Gas & Electric Light Company asks for a 15-cent surcharge on gas bills. It sets out that its net revenues have been decreasing for the last two years and that last year its deficit was $2,561. Gas is $1.30 net at Greencastle.

The Rochester Gas & Fuel Company asks a surcharge of 16 cents to its gas bills. The company's deficit last year was $2,300 and it hopes to raise an additional $3,800 by the surcharge. The Rochester gas rate is $1.25 net.

Rate Increase Asked by Southwestern Gas Company

The Southwestern Gas Company, of Hemet and San Jacinto, Cal., recently applied to the State railroad commission for an increase of 23 per cent in the rates charged for gas in those cities.

Connecticut Commission Allows Reduction in Heating Power From 575 to 528 B.t.u.'s

Under an order issued recently by the public utilities commission gas companies in Connecticut may manufacture gas having an average monthly heating power of 528 B.t.u. per cubic foot instead of 575 units. This order is a modification of the order issued by the commission June 30, 1915. In its order the commission stated that "it was claimed by representatives of the several companies that a substantial decrease of the present B.t.u. required could be adopted without perceptibly affecting the value of the service to the consumer, especially if burners were readjusted to meet the lower standard, and that the consumers would receive more practical value based upon a necessarily increased rate if the present standards are to be maintained."

The order is the result of a conference held Aug. 8 in New Haven between representatives of gas companies throughout the State. The order reads: "On and after Oct. 1, 1918, unless and until otherwise ordered by this commission, gas companies are permitted and authorized to supply to their customers gas of a not lower calorific power than 528 total B.t.u. per cubic foot."

Wilkes-Barre's New Gas Rates Effective Oct. 19

The Wilkes-Barre (Pa.) Gas Company has filed with the public service commission a new tariff of rates for the supply of gas at Wilkes-Barre, Ashley and Hanover Township, Pa., to become effective on Oct. 19, 1918, making increases, omissions and corrections in existing rates. The changes made by the new tariff include the following increases:

Unit rates increased 10 cents per 1,000 cu. ft. with the rate for the first 10,000 cu. ft. per month increased from $1.15 net to $1.25 net per month.

A rule has been established providing that new consumers shall pay for the installation of that portion of the service from the curb line to the meter connection.

Iowa Company Denied Injunction to Restrain Fairfield From Enforcing Franchise Rate

The Iowa Electric Company is denied an injunction to restrain the city of Fairfield, Iowa, from enforcing the franchise gas rate of 1.37½ per 1,000 cu. ft., according to an opinion returned by Judge Martin Wade in the Federal Court at Davenport. The electric company will have the opportunity of presenting its case at the October Term of court, at which time the court will pass upon whether or not the rate fixed in the ordinance was a condition upon which the grant of franchise was made.

Increase Granted New Bedford Company

The gas commission has authorized the New Bedford (Mass.) Gas & Edison Light Company to charge $1.10 net per 1,000 cu. ft. of gas sold after Sept. 1, 1918, and for the duration of the war. Commissioner Lewenberg dissented. On May 14 last the board authorized the company to increase its net maximum price to $1.10 net per 1,000 cu. ft., and the recent decision was made only after a careful consideration of the increased cost of everything entering into the manufacture of gas.

A VIEW IN BETHUNE, SHOWING THE CLOCK TOWER IN THE BACKGROUND. PHOTOGRAPH TAKEN ON BRITISH FRONT IN FRANCE. LIBERTY BONDS WILL PAY FOR BOMBS TO DROP ON BERLIN IN THE NEAR FUTURE

Municipal Camping Grounds in California to Have Gas Next Season

The municipal camping grounds in Sacramento, Cal., proved a great success this year, as well as an excellent advertising medium for the city. Fred G. Rennie, assistant superintendent of the city parks, says that the grounds will be improved next season, so as to afford more conveniences and facilities to the campers. The grounds will be closed before long for the winter, during which time the improvements will be made.

It was voted that $1,500 of the park fund be spent for the improvement of the camping grounds. It is planned to build two houses, in each of which will be installed about fifty gas ranges, which may be used by the campers for cooking purposes. Additional water pipes will be installed.

The supply of wood, which is at the disposal of the campers at all times free of charge, and which is furnished by the city from Del Paso Park, is rapidly diminishing.

Pacific Company Shows Housewives How to Save Gas and Electricity

The Pacific Gas & Electric Company installed a household economy booth in the Manufacturers' Pavilion, to which every housewife is invited.

The company is working in the closest harmony with Federal Fuel Administrator Schwabacher and State Power Director H. G. Butler, and the booth in the Land Show is intended to help the housewife economize in the use of fuel and appliances both gas and electric.

It is no longer a question of stimulating consumption of either gas or electricity, but how to save in order that war industries might benefit thereby.

Western Fuel Company Disposes of Holdings to Southern California Company

The Western Fuel, Gas & Power Company, of Redondo, Hermosa and Manhattan Beaches, Cal., was taken over by the Southern California Gas Company Aug. 1, after having been in operation sixteen years.

The price paid for the holdings of the old company was $150,000, payable $30,000 in cash, $81,000 in bonds and $39,000 to be paid off during the period of ten years.

The Western Fuel, Gas & Power Company was the outgrowth of an effort of the old Hermosa Beach Land & Water Company to supply that city with gas in 1902, when Hermosa Beach was in the making. Owing to the large population of Redondo Beach, the Hermosa company induced F. A. Frazer to put up a plant in Hermosa which proved in-

adequate and, having to be rebuilt at a later date, it became necessary to borrow money on the plant, and the late F. H. Spires took the plant over under a mortgage covering the outlay.

When the present maangement, R. E. Matteson, took hold of the business in 1903, the number of consumers was represented by 142 meters, which since that date has grown to approximately 2,300 meters.

The plant has been practically rebuilt under Mr. Matteson's management as the paving of the streets of Redondo, Hermosa and Manhattan Beaches necessitated the taking up of the old pipes and replacing them with larger size, together with a lot of connections, involving greater expenditure than that of the original.

As the equipment stands the three beach cities have a sufficient amount of pipe to admit of service to every lot within the district piped without the laying of larger mains, and in the case of Hermosa Beach, service pipe has been laid to all lots on the Ocean Front and Bay View drives.

Before the sale was consummated it was necessary for the Western Fuel, Gas & Power Company to obtain permission from the State railway commission to sell, and for the South California Gas Company to obtain permission to issue the bonds. In making the sale, the Western Fuel, Gas & Power Company retained their land holdings.

Practically all of the stock was owned by the Spires Estate. Mr. Matteson stated that the business as conducted by the old company resulted in a deficiency each year, that the new company is capitalized for less, and as a unit of a larger company the business stands a better show of being made a profitable one.

Court Holds Franchise Contract Is Still Binding in Knoxville Rate Case

Federal Judge McCall, in an opinion handed down recently on the petition of the Knoxville (Tenn.) Gas Company, seeking an increase in rates, ruled that the franchise contract made by that company with the city of Knoxville several years ago stlil is binding, and while admitting that there is need of relief, due to war conditions, Judge McCall held that his court, as a court of equity, cannot act in the case. The petition was filed before Federal Judge Sanford at Knoxville, but was transferred to the Federal District Court when Judge Sanford voluntarily disqualified himself. The declaration of the court here has been delivered to Judge Sanford.

Bristol Rates Increased

The Bristol (Tenn.) Gas & Electric Company has announced an increase in the price of gas of 25 cents per 1,000 cu. ft., effective Oct. 1, making the rate $1.50 net per 1,000 cu. ft.

S. M. Vance, general manager of the company, authorized the following statement in regard to the situation confronting his company:

About one year ago we found that we were operating our gas plant at a loss, and in order to meet this condition we discontinued allowing a discount on gas, making the price $1.25 net per 1,000 cu. ft.

We felt that under the condition existing at that time we could possibly break even by discontinuing the discount, but many changes have taken place since then—increased cost of fuel and the rapidly increased cost of labor and other items make it imperative that we raise our present rate of $1.25 per 1,000 cu. ft. to $1.50 net per 1,000 cu. ft., with an additional 10 per cent added for failure to pay on or before the tenth of the month following that in which the service was rendered.

Application for Rate Increase Filed by Hanford

Application was made to the railroad commission recently by the Hanford (Cal.) Gas & Power Company for an increase in rates for gas on account of the increased cost of production due to war conditions. The company reports a revenue deficit of $2,710 for the first seven months of this year. The appraised value of the plant is $217,623. The rates now being charged were fixed, the application states, when the company began business five years ago and no dividends have been paid since that time.

Present rates are $1 for a minimum of 600 cu. ft. and a graduated scale with 10 cents for all consumption in excess of 1,000 ft. The company asks for the establishment of a minimum charge of $1 for 500 cu. ft. or less, and the following schedule: Next 4,500 ft., $1.90; next 5,000 ft., $1.80; next 5,000 ft., $1.70, and all over 15,000 ft., $1.40, with 10 cents discount per 1,000 on each class.

Benton Harbor Company Announces Increase

The Benton Harbor-St. Joseph Gas & Fuel Company, Benton Harbor, Mich., has announced a temporary increase in its schedule of rates amounting to 15 cents per 1,000 cu. ft. The abnormal increase of all materials, labor, freight rates, taxes and miscellaneous expenses has, the company states, compelled the company to increase its revenue in order to maintain its credit. The company faithfully pledges itself to voluntarily reduce its rates in the future whenever conditions will permit.

Monongahela Valley Company Notifies Consumers of Increase

The Monongehela Valley Traction Company, of Fairmonth, W. Va., issued notices to its patrons that the company will raise its rates to both industrial and domestic consumers shortly. The new gas rate will be 25 cents per 1,000 cu. ft. for industrial use and 27 cents per 1,000 cu. ft. for domestic consumers.

Petition Filed by Indiana Company for Increase

The Indiana Gas Light Company, of Noblesville, Ind., has just filed a petition with the Public Service Commission of Indiana asking for authority to establish a new rate for manufactured gas to be furnished to customers of Noblesville as a war-time emergency measure. The company points out that an experimental rate ranging from $1.10 per 1,000 cu. ft. to 75 cents, gross, has been inadequate to meet cost of operation under war conditions. This experimental rate was placed in effect Oct. 6, 1917. The company has been forced to take its supply of gas from the Central Indiana Gas Company, and war conditions have made it absolutely imperative to continue thus dependent on the Central Indiana company, since the construction of an artificial plant at Noblesville has been impossible because of constantly increasing war-time costs. Eight months' operation of the company under the experimental rate has shown a deficit of $7,471.94. The company asks a new rate of $1.50 per 1,000 cu. ft. for all gas, with a discount of 10 cents per 1,000 cu. ft. for all gas consumed over 1,000 cu. ft. per meter per month.

Employees of Laclede Company Take Steps to Incorporate Mutual Aid Association

Steps have been taken by the employees of the Laclede Gas Light Company, of St. Louis, to incorporate the Laclede Gas Light Company Employees' Mutual Aid Association. The purposes of this organization, as set forth in the copy of the by-laws and constitution filed with the application for a pro forma decree of incorporation in the Circuit Court, are: "Fraternal and benevolent, to aid sick and disabled members, to afford burial expenses when members die, and to promote social intercourse among the families of fellow employees of the company."

The officers of the association are: C. Howard Stewart, president; J. L. Eigenbrot, vice-president; Walter J. Betzold, secretary, and Albert Knabe, treasurer. These and ten directors manage the affairs of the society, which has been in existence about six years.

Gas Pressure in Well Near Ballinger Now 2,000,000 Ft.

Gas pressure in the Gulf Producing Company well near Ballinger, Texas, has increased to 2,000,000 ft., and other pockets have been penetrated at a depth of 2,200 ft.

NOTICE

TO GAS CUSTOMERS

Due to another increase in the price of gas coal, by authority of the Government, effective August 23, 1918, and a still further increase in the cost of operation at the gas plant, due to the increase of wages, the Greenville Gas Company finds it necessary to avail themselves of the authority given them by the City Council in June, 1918, of a further increase of 15 cents per one thousand cubic feet in the price of gas, to go into effect on October 15, 1918.

Therefore public notice is hereby given to all patrons of the Greenville Gas Company of a change in gas rates to take effect commencing with October 15, 1918, in accordance with authority granted in an amended ordinance to the Gas Franchise passed by the City Council of Greenville, Mississippi, on Wednesday, June 12, 1918, and published in the Greenville Democrat-Times on Thursday, June 13, 1918, and in effect on and after that date.

Commencing with October 15, 1918, all gas consumed each month will be billed to users upon the following basis:

For the first 10,000 cubic feet at $2.00 gross, or $1.90 net per one thousand cubic feet.

For the second 10,000 cubic feet at $1.75 gross, or $1.65 net per one thousand cubic feet.

And for all over 20,000 cubic feet at $1.50 gross, or $1.40 net per one thousand cubic feet.

All Gas consumed through a Prepay Meter will be charged at $1.90 net per one thousand cubic feet.

A monthly minimum bill of $1.00 will be charged whether a prepay or regular meter.

Last day of Discount on all bills will be the 10th day of each month.

GREENVILLE GAS CO.

229 Washington Avenue. **Telephone 12.**

GREENVILLE COMPANY GIVES NOTICE TO CONSUMERS OF INCREASED RATES IN ADVERTISEMENT

American Society of Mechanical Engineers Establishes Section in Cleveland

The American Society of Mechanical Engineers has established a section in Cleveland known as the Mechanical Section of the Cleveland Engineering Society. The petition for this section was made jointly by members of the local society and by members of the National society resident in Cleveland. This new section comprises the towns or cities of Akron, Barberton, Bedford, Chardon, Cleveland, Cuyahoga Falls, East Cleveland, Illyria, Hudson, Kent, Lakewood, Lorain, Massillon, Quarryville, Ravenna, Sandusky, South Euclid, Wickliffe, Willoughby and Wooster, totaling a society membership of approximately 260 at the present time, the sixth largest in the country.

The Cleveland Engineering Society was organized in 1891 and now comprises a membership of approximately a thousand, and is known throughout the country as one of the most active and influential local organizations of engineers.

Increase Production of Oil by Cementing Wells

Saves 2,000 Barrels of Oil Daily and Adds $4,500 to Income

By urging the cementing of oil wells in the North Cushing field of Oklahoma, in order to keep out the detrimental flow of water, experts of the Bureau of Mines, Department of the Interior, have succeeded in increasing the production of oil from fifty wells more than 2,000 bbl. a day.

Aside from the commendable saving of 2,000 bbl. of oil each day for war uses, this lesson in practical conservation will add $4,500 a day to the operators' gross income, and if the increased oil yield continues for one year, a not oversanguine expectation, there will be an addition of more than three-quarters of a million barrels of oil for war purposes and $1,640,000 more in the pockets of the operators.

It is estimated by A. A. Hammer and V. L. Conaghan, the Federal oil and gas inspectors for Oklahoma, who have charge of this campaign, that the total cost of excluding the water from the fifty wells was $10,000, which means a return of about $165 for each dollar invested.

Secretary of the Interior Lane, commenting on the report from the

field, said: "This is the kind of practical conservation that counts heavily just now. It not only is saving from waste one of the most precious natural resources with which this country is blessed, but is also supplying much needed fuel for the army and navy. At the same time it is paying the operators handsomely to increase the flow of their wells.

"It happens that the crude oil from Oklahoma contains much gasoline. An increase of 2,000 bbl. of crude oil a day means 500 bbl. of gasoline a day, or more than 7,500,000 gal. in a year's time. This saving alone, from this restricted field in Oklahoma, is sufficient to drive every automobile in the United States an average of 20 miles, and there are five and a half million automobiles in the country.

"The best of it is, this is but the beginning of an enormous saving of crude oil by keeping the water out of the wells. It has taken the bureau two years to demonstrate the feasibility of using cement in the Oklahoma wells, but now that such a saving can be effected it is being adopted by all progressive oil men. I understand that the bureau has already started a campaign in the Healdton field, Oklahoma, and that, while it has not yet received a report of the actual results, it is estimated that the saving in this field amounts to more than 300 bbl. of crude oil a day. In Illinois the same plan is being introduced, so that the Bureau of Mines is confident that the total savings to the country will be considerable, and will go quite a distance in supplying our urgent war needs.

"In normal times, without a war for civilization on our hands, we would hail the men who are accomplishing this as benefactors of mankind.

Increased Rate Permitted for Burlington

The Keiser Gas Company, of Burlington, Kan., has been authorized and permitted by the Kansas Public Utilities Commission to publish, make effective and collect for gas sold and delivered to its consumers the following schedule of rates effective Oct. 1:

For gas sold to domestic consumer, 40 cents per 1,000 cu. ft.; for gas sold for consumption under gas engine, 40 cents per 1,000 cu. ft.; for gas sold to be used for industrial purposes, 25 cents per 1,000 cu. ft.

Guthrie Rate Increase Effective Oct. 1

The Guthrie (Okla.) Gas Light, Fuel & Improvement Company has been authorized by the corporation commission to charge the following rate, effective Oct. 1:

The first 200,000 ft., 35 cents gross, 3½ cents discount if paid by the tenth of the month, net 31½ cents; next 300,000 ft., 26 cents gross, 2½ cents discount if paid by the tenth of the month, 23½ cents net; all over 500,000 ft., 25 cents gross, 2½ cents discount if paid by the tenth, 22½ cents net.

Shelbyville Cases Decided

The Citizens Natural Gas, Oil & Water Company, of Shelbyville, Ind., recently was authorized by the public service commission to discontinue its service to patrons and take up its lines outside the city. It was denied the right, however, to engage in the manufacture of artificial gas in Shelbyville in competition with the Interstate Public Service Company. Duplication of operating expenses, which would result from two like utilities in Shelbyville, was given as one of the reasons for denial of the right to engage in manufacture of artificial gas. The commission's order called attention to the fact that the commission regulated the utility having the monopoly in Shelbyville.

Bismarck Company Requests Higher Rate

The Bismarck (N. D.) Gas Company recently advised its patrons of an increase of 50 cents per 1,000 ft. of gas for the period of the war. This increase has been necessitated by the abnormal advance in the cost of coal and other materials and of labor. The increase, states Frank Ployhar, president of the company, will be in no sense permanent, and will be employed only so long as the war cost emergency exists.

"We had hoped," said President Ployhar, "that by increased efficiency and rigid economy, and by an increase in volume of business it would not be necessary to ask customers for an assistance, and we have in this expectation carried the entire burden during the past year. Conditions have grown steadily worse, until we have arrived at a point where it is necessary to state the case frankly to our customers and to appeal to them for fair co-operation."

Fuel Wastage in United States

Fuel sufficient to operate the railroads of the United States for one month is being absolutely wasted every year by the users of fuel oil.

Five times the fuel necessary for all the Federal Government, including its Navy and Army, is being thrown away by these same users of fuel oil.

The fuel being squandered, and recklessly, too, by these same fuel oil users is approximately the entire output of coal for the State of Colorado in one year's time.

These are the startling conclusions that have been drawn by experts of the Bureau of Mines, Department of the Interior, who have been co-operating with the Fuel Administration in a general survey of the use of fuel oil for power purposes in the United States. They find that last year 160,000,000 bbl. of fuel oil were used and that 40,000,000 bbl., or one-fourth of the entire amount, was wasted and might have been saved by more intelligent operation of plants and proper firing. This represents a useless expenditure of $140,000,000 a year, or enough money to pay some of the country's important war bills, the fuel oil selling at about $3.50 a barrel. The experts also say that this wastage is doubly criminal at this time, because of the urgent need of fuel oil for the ships of the Navy and for other essential war purposes. Further they declare that the 40,000,000 bbl. of fuel oil lost each year is the equivalent of 10,000,000 tons of coal.

With such a situation confronting the country, both the Bureau of Mines and the Fuel Administration have sent into those parts of the country where fuel oil is extensively used a number of engineers who have been visiting the plants and endeavoring to demonstrate to the men where losses occur and showing how they may be stopped. As one result of the investigation a handbook for boiler-plant and locomotive engineers in the efficient use of oil fuel has been issued by the Bureau of Mines giving instructions to all those who have oil burning plants. Van. H. Manning, director of the Bureau of Mines, has ordered that a copy of these instructions be forwarded to all known plants using fuel oil.

"I have always been aware that the United States, probably through her great richness of resources, is one of

the most wasteful of nations, but it has taken the emergencies of the war to disclose with startling directness the colossal wastes of war-winning supplies that are still going on," said Director Manning. "It is a new chapter in national profligacy to learn that in its use we are wantonly destroying one-fourth of our supply of fuel oil to the extent of 40,000,000 bbl. a year, while our oil operators are directing every available energy and millions of dollars toward inducing the earth to give up more and more of the precious petroleum, the most perfect of existing fuels.

"It calls for something more than criticism from a Federal official when we realize that in this greatest of world's crises, with the future of the people in jeopardy, the very fuel which is greatly needed for our American Navy to drive it on to final victory is being dissipated here in this country to such an alarming degree. It calls for immediate and drastic action, and with the co-operation of the Fuel Administration we propose to see that the waste is stopped."

Illinois Manufacturers Association Completes Organization of Fuel Auxiliary

Organization of the Fuel Auxliary of the Illinois Manufacturers' Association was completed at a meeting in Chicago, Sept. 24. The following were elected:

President, G. B. Child, American Stove Company; vice-president, H. H. Clark, Public Service Company of Northern Illinois; secretary and treasurer, J. M. Glenn.

Directors (to serve three years), A. O. Herzog, Beckman-Dawson Company, Argo; C. J. Levy, National Machine Works, Chicago; G. F. Gebhart, Armour Institute, Chicago; (to serve two years), A. F. Stahl, National Malleable Castings Company, Chicago; E. J. Stephany, Western United Gas & Electric Company, Aurora; D. B. Geesman, Buda Company, Harvey; (to serve one year), F. F. Cauley, Peoples Gas Light & Coke Company, Chicago; F. B. Hamerly, Independent Tool Company, Aurora; T. F. Egenoff, American Can Company, Maywood.

It is proposed to have standing committees who are authorities on each kind of fuel and to these fuel problems may be referred for investigation.

The necessary experiments will be made by these committees, the members of which will be named at an early date.

The organization meeting was made the occasion of a dinner at which addresses were made by Hale Holden, regional director, United States Railroad Administration, Chicago; Frank S. Peabody, president of the Peabody Coal Company, Chicago, and Harold Almert, chairman, Conservation Committee, Illinois Division, United States Fuel Administration, Chicago.

Winsted Company Increases Capital Stock

The Winsted (Conn.) Gas Company has increased its capital stock by issuing $55,000 of new stock, making the total authorized capitalization $800,000.

Openings in Essential Industries and Departments of Government

A. M. Krom, director of engineering, 29 South La Salle Street, Chicago, Ill., announces the following openings in essential industries and departments of the Government:

(X) A limited number of mechanical engineers, from thirty to forty-five years of age, who are thoroughly familiar with shop and metal work; men should have university degree and be willing to accept salary of about $2,000 for highly important war work, directly with the Government, in this country. A few mechanical engineers with a knowledge of fabrics will also be considered. Engineers qualified for this work should give this notice immediate attention. The highest type of men are required for this unusually interesting service.

Teachers of radio-telegraphy, chemical engineers, engineers of tests, transitmen and rodmen.

Cargo and hull draftsmen.

One chemical engineer for work with an electric chemical company in Ohio.

Textile inspectors with knowledge of chemistry.

Chemists, analytical, for work in Ohio.

For full information and application blanks apply to the Director of Engineering, 29 South La Salle Street, Chicago.

Men already engaged in essential industries need apply only for position listed (X).

Atlantic City Company Pays Dividends

Official announcement was made that the Atlantic City Gas Company mailed on Sept. 27 checks to pay delayed interest on the bond issue. Counsellor Carlton Godfrey, in the United States District Court, had applied for a writ to show cause why a receiver should not be named. The case at its first hearing developed the fact that bonds contained a provision that the company should have three months in which to pay interest.

Report of Citizens Gas Company for First Six Months

The Citizens Gas Company, of Indianapolis, Ind., has just sent to its stockholders a complete report of its operation for the six months ending June 30, 1918. The statement says that "a regular semi-annual dividend of 5 per cent has been declared out of earnings to June 30, 1918." This dividend was paid Sept. 28, the company announces.

Difficulties of operation for the company because of coal shortage have continued constantly during the six months the report covers, it is shown. Since the last of March, the report says, it has been impossible to repair most of the damage which was done to the plant by hard usage with unsatisfactory coals last winter. It has also been impossible to accumulate substantial stocks of coal.

The report to the stockholders for the six months ending June 30, 1918, follows in part:

The difficulties of operation on account of the country-wide coal shortage, which have been mentioned in previous reports, were continued during the first half of the period covered by the present report. This not only reduced the earning capacity of the company, but caused great inconvenience to the gas consumers of the city of Indianapolis during all of last winter. At the very time when supplies of coal and oil were most difficult to obtain, the demand for gas arose to an unprecedented quantity, and the situation continued until about the middle of March. Since that time it has been possible to repair most of the damage which was done to the plant by hard usage with unsatisfactory coals last winter, and it has also been possible to accumulate very substantial stocks of coal. More recently the U. S. Fuel Administration has diverted over 25,000

tons of coal per month from your company to the United States Steel Corporation, which seemed to be in greater need. This action has seriously interfered with plans for the accumulation of a safe supply by the beginning of December, but the needs of the company are being kept constantly before the Fuel Administration, and promises are given that supplies will be improved shortly. However, no improvements from this time forward will enable your company to accumulate ninety days' supply of coal by the beginning of winter, which was the program which was laid out for this year.

In response to the increasing demand for gas and the urgent request of the public service commission, and also in response to the requests of the Government for a larger output of coke and by-products, your company has undertaken the enlargement of its Prospect Street plant, and confidently expects to have the new equipment in use by the beginning of winter. While no conceivable enlargement would make it possible for the community to substitute gas for coal for heating purposes on an extensive scale, the enlargement undertaken will make it possible to furnish the community an abundant supply of gas for all normal uses, provided, of course, that adequate supplies of coal can be obtained. The public service commission authorized a restoration of the franchise rate of 60 cents per 1,000 cu. ft. for gas, to assist in meeting the present excessive construction costs and the high rates on borrowed capital.

Instructions were issued to your company by the U. S. Fuel Administration to make no contracts for the sale of coke for domestic fuel until essential industries were properly supplied. On account of the great increase of war work, it was found that no coke was available after providing for the needs of essential in-industries which cannot substitute bituminous coal for coke. It has been possible, however, to release a considerable quantity of chestnut coke for domestic fuel in Indianapolis, and this will probably be sufficient to take care of the requirements of homes which depend upon base burners for which only coke or anthracite coal is suitable.

The local taxing authorities having increased the valuation for taxation of your properties nearly 100 per cent, making it relatively higher than the valuation of any other class of property in the State, application has been made to the courts for relief. Meanwhile, however, heavy additional taxes have to be paid under protest, and accordingly it has been necessary to set up special reserves to take care of these requirements, pending a settlement of the question by the courts. No provision is made in the following statements for the Federal income and excess profits taxes, but the surplus shown from the operation for the six months seems to be adequate to meet any possible requirements for this purpose and at the same time permit the payment of the customary dividend, which has been declared by your directors and made payable Sept. 28, 1918.

Mains in use, 624.48 miles; meters in use, 60,414; gas sales, 1,292,725,000 cu. ft.; coke produced, 196,113 tons; ammonia (NH_3) produced, 1,266,629 lb.; coal tar produced, 1,854,768 gal.

REVENUE STATEMENT

Operating revenue:		
Gas	$701,790.53	
Coke	1,648,359.16	
Ammonia	149,376.20	
Coal tar	84,978.83	
Miscellaneous	2,853.54	
		$2,587,358.26
Operating expenses:		
Manufacturing	$1,843,319.33	
Distribution	105,652.31	
Commercial	33,975.16	
Coke and by-products sales expense	80,181.27	
General (administration, insurance, legal, etc.)	43,149.21	
		2,106,277.28
Net operating revenue		$481,080.98
Taxes		76,298.64
Net operating income		$404,782.34
Non-operating revenue:		
Net benzol earnings	$94,464.56	
Interest and discount	4,033.07	
Miscellaneous (deficit)	1,721.11	
		$96,776.52
Total net revenue		$501,558.86
Leasehold rental		191,467.99
Net earnings		$310,090.87
Interest	$66,981.77	
Amortization	5,468.57	
		72,450.34
Net profits before reserve charges		$237,640.53
Depreciation reserves	$59,213.40	
Reserve for disputed taxes	40,000.00	
Sinking fund reserve	13,595.85	
		$112,809.25
Surplus available for Federal taxes, dividends and contingencies		$124,831.28

RECEIPTS AND DISBURSEMENTS

Receipts:		Disbursements:	
Balance Jan. 1, 1918	$94,553.21	Interest	$63,800.00
Notes payable	175,000.00	Leasehold rental	186,825.00
Accounts receivable	2,674,460.04	Dividends	75,000.00
Interest and discount	8,646.00	Liberty Bonds	3,750.00
U S. Treas. certificates	20,000.00	Bond sinking fund	12,310.00
General mortgage bonds	270,000.00	Salaries and wages	448,056.39
Miscellaneous	21,569.92	Materials (construction & operation)	2,043,509.73
		Taxes	100,974.55
		Milburn By-Products Coal Co.	100,000.00
		Miscellaneous	11,981.32
		Balance June 30, 1918	218,022.18
	$3,264,229.17		$3,264,229.17

Sedalia Company Secures Increased Rate

The City Light & Traction Company, of Sedalia, Mo., has been granted an increase in gas rates of approximately 20 per cent, effective Oct. 1.

THE TEXAS OIL, GAS & MINERAL PRODUCTS COMPANY has been organized with $1,000,000 capital; W. C. Munn, president, Houston, Texas. The company will develop its resources in Grimes County, Texas.

Personal Notes

Leon B. Jones Enlists as Private of Engineers

Leon B. Jones, assistant chief engineer of the gas department of the Pacific Gas & Electric Company, San Francisco, Cal., has enlisted as a private of engineers in the United States Army.

Leon B. Jones is the second son of E. C. Jones, chief engineer of the gas department of the Pacific company, and inherited a love of the gas business from three generations of ancestors extending back to the beginning of the industry. His connection with the Pacific company dates from the busy days following the disaster of April, 1906, when he left the California School of Mechanical Arts. He has done some brilliant work during his twelve years of service, having been the originator of oxy-acetylene welding of steel gas mains. This process was described in a paper read before the Pacific Coast Gas Association in September, 1912, and credit for original development work in oxy-acetylene welding was given Mr. Jones by the Panama-Pacific International Exposition in the award of a diploma and gold medal.

During the last six years he has devoted himself to the improvement of the process of manufacturing oil gas. In collaboration with his father he developed the newest process and apparatus for the manufacture of gas from crude oil, which is patented in the name of E. C. and L. B. Jones. Much of this work was described in a paper read in September, 1913, before the Pacific Coast Gas Association, for which Mr. Jones was awarded the gold medal of the association.

Mr. Jones is a member of the Pacific Coast Gas Association, the American Gas Institute and the American Association for the Advancement of Science, is a junior member of the American Society of Mechanical Engineers and a director of the Pacific Coast Gas Association.

He has devoted much time and thought recently to the extraction of toluol from manufactured gas, and

LEON B. JONES

has been active in assisting the Gas Defense Service of the United States Army. In this branch of the national service he has had opportunity to receive an officer's commission, but he felt that the place for red-blooded American boys was at the front, and the proper way to get there was to start as a private soldier, although his work for the Pacific Gas & Electric Company was such as made him all but indispensable, practically exempting him from military service. He is only twenty-eight years old, and so was not entitled to take the recent examination for engineer officers.

He is now assigned to the First Replacement Engineers, Company C, Washington Barracks, D. C., and will probably soon be placed in an engineer officers' training school.

W. J. DUFFY has been appointed accountant at the Eureka, Cal., division of the Western States Gas & Electric Company, succeeding N. A. MacMillan, who has accepted a position as a bank cashier.

C. E. GRAY, JR., has assumed his new duties as superintendent of the Grand Rapids (Mich.) Gas Light Company.

CHARLES S. DAVIS, of Davis, Peabody & Brown, lawyers, has been elected a trustee or director of the following companies: Boston Consolidated Gas Company, Massachusetts Gas Companies, New England Fuel & Transportation Company, New England Coal & Coke Company and New England Manufacturing Company. On the last named board Mr. Davis succeeds C. Minot Weld, deceased, and on the others he succeeds Robert C. Pruyn, resigned.

EDWARD F. GOGGIN has severed his connection as superintendent of the Marlboro-Hudson Gas Company, Marlboro, Mass. He has been in the company's employ for about twelve years, eight of which were spent with the present owners. Mr. Goggin has not yet announced his future plans.

G. WARREN STILES, superintendent of the Fitchburg (Mass.) Gas & Electric Light Company for the last nine years, has tendered his resignation to the company, which took effect Oct. 1, and assumed his new duties as superintendent and gas engineer with the Portland (Me.) Gas Light Company. Mr. Stiles has been associated with the gas and electric industry for over thirteen years, and for nine years in engineering and construction work. He entered the gas industry with C. H. Tenney & Company, of Boston, when they purchased the Malden & Melrose Gas Company. There as superintendent he had charge of the reconstruction and additions to the plant equipment, as well as of the operative departments. When the Tenney interests purchased the Fitchburg company in 1909, Mr. Stiles was sent to rebuild that plant, as he had that at Malden, and had charge of the installation of all its up-to-date gas machinery.

THE SANTA BARBARA (CAL.) GAS & ELECTRIC COMPANY recently held the annual stockholders' meeting, at which John F. Diehl was elected president, W. A. Brackenridge vice-president, and S. M. Kennedy secretary and treasurer.

THE VAN ZANDT GAS APPLIANCE COMPANY, of St. Louis, has become a member of the St. Louis Chamber of Commerce, where it is being represented by O. H. Beadles, assistant secretary of the company.

Increase Allowed Charlestown Company

The board of gas and electric light commissioners has authorized the Charlestown Gas & Electric Company, Boston, Mass., to charge $1.10 net per 1,000 cu. ft. for gas delivered for the duration of the war.

Boiler Breaks Down at Norfolk Plant

Railway Locomotive Used to Supply Steam—Improvements Being Made

The breaking down of one of the boilers at the plant of the City Gas Company, of Norfolk, Va., recently while the other was down for repairs left Norfolk without this fuel, and much inconvenience was suffered by small and large consumers. One boiler was being repaired. The other suddenly went out of commission and the plant was helpless.

A small locomotive was requisitioned and hauled up to the plant. This was coupled up and put to work to supply the steam deficiency, as far as possible, but it was inadequate to the demands of the plant. Officials tried to locate another and larger locomotive to help pull the machinery and provide a nominal supply of gas.

H. H. Miller, general superintendent of the plant, said that the complete exhaustion of the supply was due to an unfortunate accident that could not be foreseen and avoided.

"We are rebuilding and re-equipping the plant throughout with new machinery just as rapidly as we can. A new boiler of adequate capacity has been ordered and should be on the way soon. But in the meantime the equipment we have and are now installing will be sufficient to meet all normal demands and prevent another such breakdown."

Oklahoma Natural Gas Company Completes Plans to Lay Entire New System of Pipe Lines

With an authorized expenditure of $2,000,000 entirely taken care of by stockholders without the issuing of bonds under approval of the Capital Issues Commission, the Oklahoma Natural Gas Company officials in conference in Oklahoma City, Okla., Sept. 27, completed plans for laying an entire new system of pipe lines into a new gas territory south of Chickasha. The system will enter the city by a new route, thereby serving the double purpose of giving added supply and equalizing the distribution.

The engineers have completed their plans and pipe is in readiness for shipment, so that work will begin shortly. It is hoped to have the line completed by the first of the year.

The line leaving the city by the southern outlet will cross the north fork of the Canadian River and also the Canadian itself, and run south past the Chickasha district into southern gas territory.

At the conference, which lasted four hours, in the office of Judge C. B. Ames, G. T. Bradon, president, and R. C. Sharp, vice-president, both of Tulsa, were present.

THE COAST VALLEYS GAS & ELECTRIC COMPANY reports for the year ended June 30, 1918, gross earnings $326,090, expenses and taxes $215,128, net earnings $111,061, other income $1,334, gross income $112,396, charges $58,546, net income $53,850, profit and loss credits $87,000, gross surplus $140,850, profit and loss charges $21,971, final profit and loss surplus $113,879.

THE KANSAS GAS & ELECTRIC COMPANY reports August gross $150,290, increase $41,355; net after taxes $47,493, increase $19,887; surplus after charges $13,470, increase $9,773; twelve months, gross $1,925,158, increase $213,678; net after taxes $605,518, increase $102,987; surplus after charges $127,106, increase $2,723.

THE SOUTHERN CALIFORNIA GAS COMPANY is showing the best earnings in its history, both gross and net, in spite of large increases in expenses. The following comparative tabulation of earnings for the last three fiscal years ended June 30 shows the progress made:

For three months ended June 30:

	For Twelve Months Ended June 30		
	1916	1917	1918
Gross earnings	$897,599	$1,207,249	$1,690,640
Operating expenses and taxes	597,611	801,549	1,171,686
Net earnings	$299,988	$405,700	$518,954
Other income	70,624	134,915	50,050
Total net income	$370,612	$540,615	$569,004

For the fiscal year the total net income was more than two and three-quarters times the annual interest charges, and net earnings from gas operations alone were over two and a half times the annual interest requirements.

THE SALEM (MASS.) GAS LIGHT COMPANY reports as of Aug. 27 total assets of $1,236,266, compared with $1,234,488 the same date a year ago. Cash and debts receivable show a decline from $63,337 to $47,100; and merchandise, material and stock in process amount to $71,841, against $68,832 in 1917. Accounts and rates payable are $232,500, against $448,000, and the profit and loss surplus is reported at $202,852, against $214,973 last year.

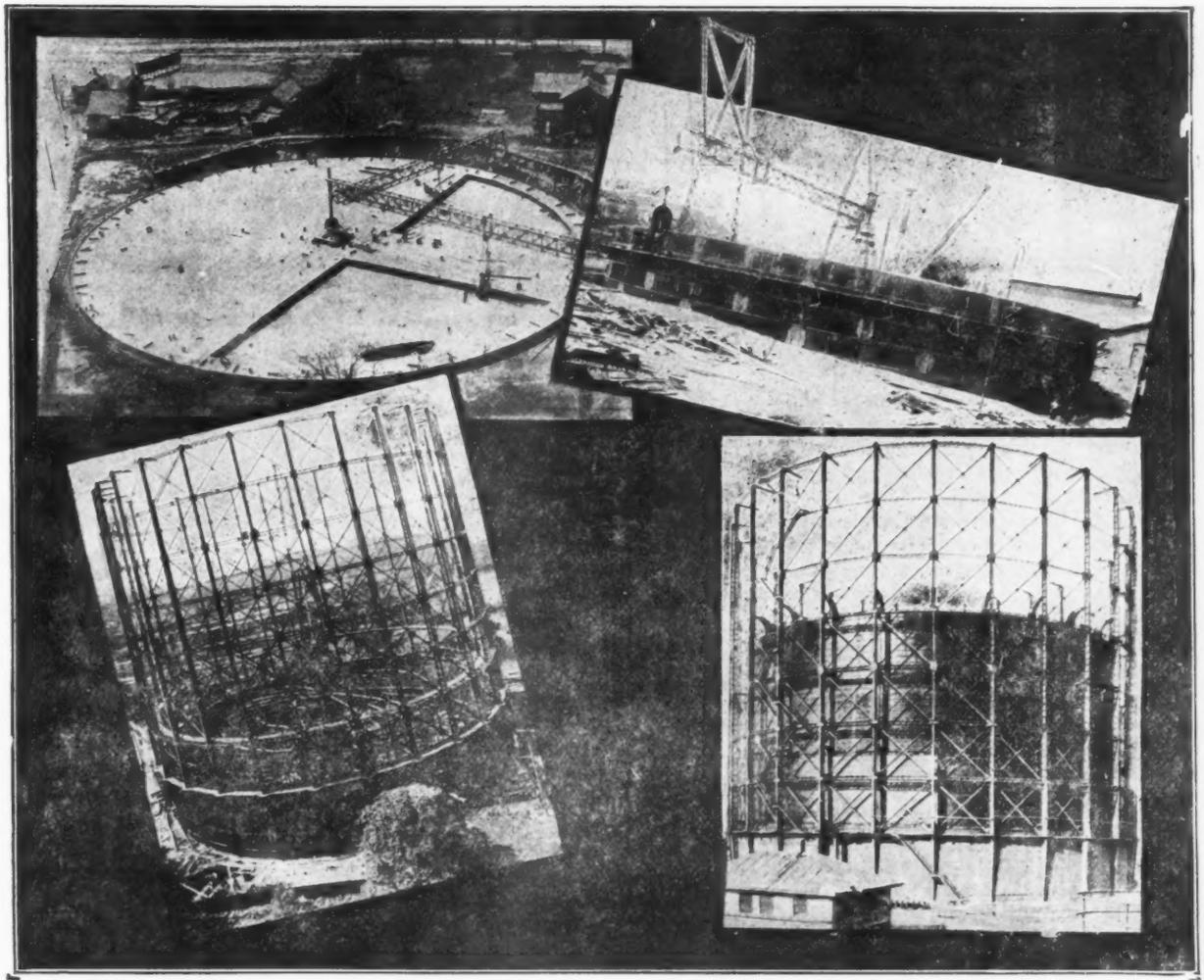
THE ST. LAWRENCE GAS & OIL COMPANY, INC., New York City. Oil, gas and mineral business. Capital, $50,000. Incorporators, B. Leavy, 276 Audubon Avenue; S. S. Ryckman, 503 West 178th Street; W. D. Moore, 149 Broadway, New York City.

THE MASSACHUSETTS GAS COMPANIES has declared a dividend of 1¾ per cent, payable Nov. 1 to stock of record Oct. 15. Other dividends are: Boston Consolidated Gas Company, 1½ per cent, payable Sept. 30, stock of record Sept. 27; Newton Gas Company, 2½ per cent, same dates; East Boston Gas Company, 2 per cent, same dates; Citizens Gas Company, of Quincy, 1½ per cent, same dates; New England Fuel & Transportation Company, 2 per cent, same dates; New England Coal & Coke Company, 2 per cent, same dates.

THE BETA OIL & GAS COMPANY, $150,000; C. L. Rimlinger, M. M. Clancy; F. A. Armstrong, of Wilmington, Del.

THE POCAHONTAS OIL & GAS COMPANY, $150,000; L. R. Wilson, L. A. Irwin, W. G. Singer, of Wilmington, Del.

THE WESTERN STATES GAS & ELECTRIC COMPANY, of Delaware, declared the regular quarterly dividend of 1¾ per cent on the preferred stock of the company, payable Oct. 15, 1918, to stockholders of record Sept. 30, 1918.



RITER-CONLEY COMPANY

STEEL CONSTRUCTION

PITTSBURGH

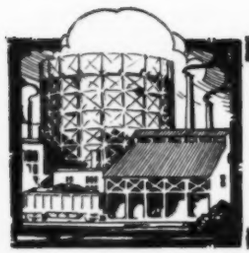
GAS PURIFYING MATERIALS

NATRONA RED ORE
To Be Mixed With Fluffing Material

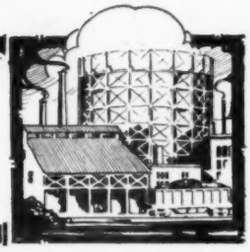
MINERAL SPONGE
The Best Fluffing Material

MINERAL SPONGE OXIDE
Prepared For Use

PENNSYLVANIA SALT MFG. CO.
WIDENER BUILDING
PHILADELPHIA - - - - - - - PENNA.



With The Equipment & Appliance Manufacturers



Conducted by Business Department of American Gas Engineering Journal

Coal Handling Apparatus

John F. Godfrey, Elkhart, Ind., manufactures conveyors and coal-handling machinery designed especially to meet the requirements of gas companies.

The Godfrey conveyor enables the handling of coal direct from cars to storage, or direct to bunkers or bins. Only one man is required to operate it.

This company also makes a reclaiming conveyor which handles all

GODFREY CONVEYOR

sizes of coal and coke from cars to storage. One man at the hoist controls the unloading and storing. In reclaiming a second man is used to guide the bucket at storage pile.

They manufacture several other economical coal and coke handling devices, which are shown in their catalogue, and which can be had on request.

Lead Wool for Calking Cast Iron Pipe Joints

The United Lead Company, of New York, recently issued a booklet entitled "Lead Wool—How to Use It," which contains a fund of information for the superintendent of distribution of every gas company, especially where cast-iron pipe is used.

Gas engineers admit that about 6 per cent of all gas manufactured does not reach the consumer, and this is largely caused by leaky joints. They estimate that $5,000,000 worth of gas is lost in this way annually.

The superintendent of distribution of the Detroit City Gas Company carried on a series of experiments to establish the merits of the various materials on the market for calking cast-iron pipe joints, and the most interesting fact developed was the strength of a lead wool joint. The difficulty in breaking the joints led them to the belief that cast-iron pipe could be calked alongside the trench and lowered in without disturbing the joint. This was tried on 16-in. pipe, and three lengths at a time were successfully handled in this way. The advantages of this method are apparent to all gas men in charge of this end of the work.

In making a joint with lead wool, the jute is first driven in as tightly as possible, then the lead wool, rope by rope. Each blow upon the lead expands it in the pipe, and at the same time drives back and holds the jute so that the lead completely fills the lead space. The result is a joint that can shift several inches without leaking.

The illustration shows how the lead wool is prepared for calkers.

Recording Thermometers for Gas Plants

The style of recording thermometer shown below is especially designed to indicate and record temperatures of liquids and gases in enclosed vessels or pipes under pressure, and is adapted for service in gas plants.

FOXBORO RECORDING THERMOMETER

The thermometer shown is of the long distance type, the pressure being transmitted through a very fine base capillary tube to the helical tube movement enclosed within the case. The capillary base tube is protected against physical injury by heavy bronze armored tubing, reinforced at both the bulb and case ends where the greatest strain is liable to come.

This is only one of a large variety of recording instruments made by the Foxboro Company, Foxboro, Mass., and they offer to send bulletin illustrating all of them on request.

LEAD WOOL BEING PREPARED FOR CALKERS